



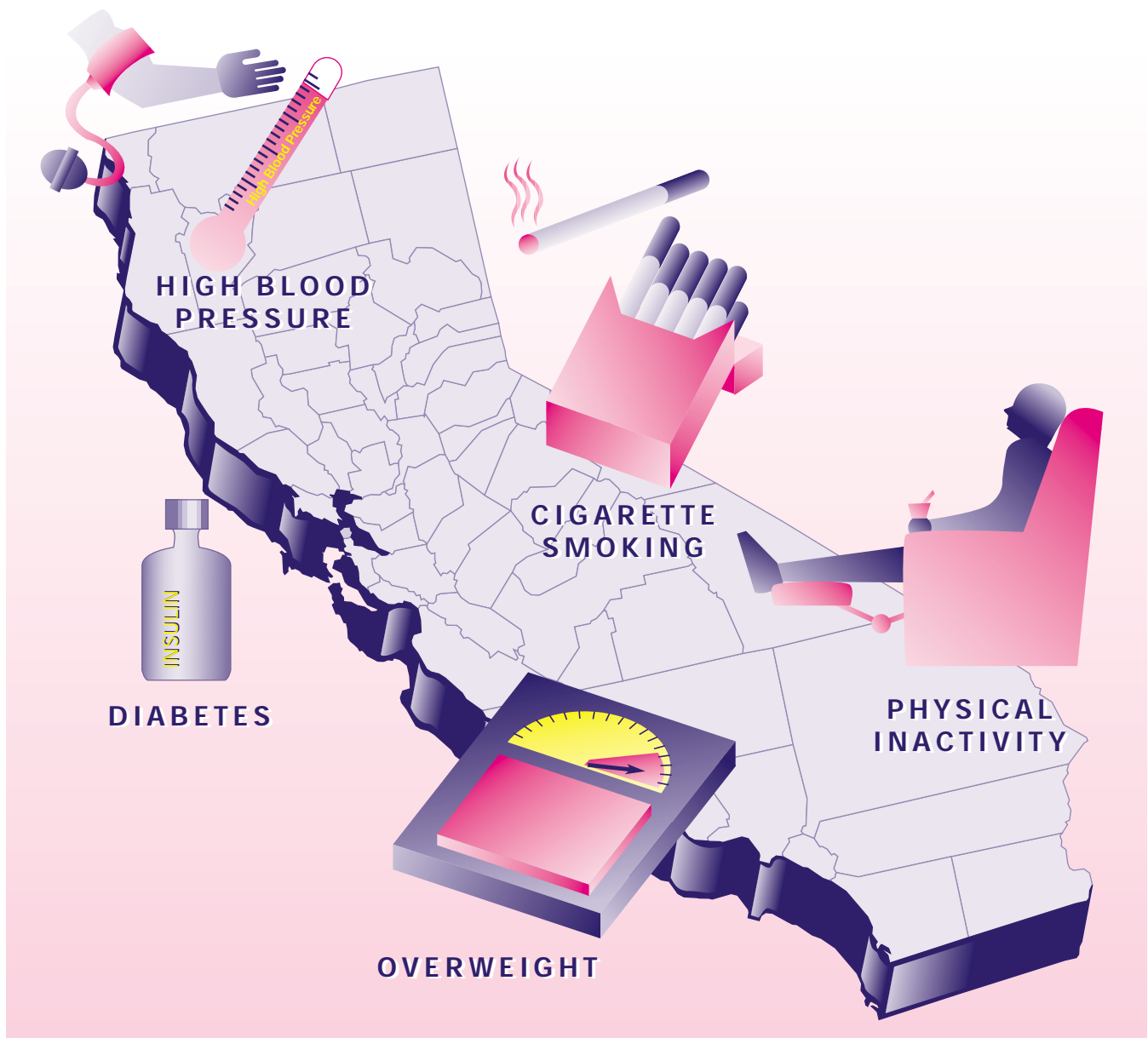
# CORE Profiles...

*The Burden  
of Cardiovascular Disease*

CORE Cardiovascular Disease Outreach, Resources and Epidemiology PROGRAM

Report Number 5

## **Cardiovascular Disease Risk Factors among California Adults, 1984-1996**



*Cardiovascular Disease Risk Factors*  
AMONG CALIFORNIA ADULTS  
*1984-1996*

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# A c k n o w l e d g m e n t s

This is Report Number 5 in a series of reports on heart disease and stroke in California. It was prepared by the California Cardiovascular Disease Outreach, Resources and Epidemiology (CORE) Program of the University of California at San Francisco, Institute for Health & Aging and the California Department of Health Services.

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## RISK FACTOR REPORT HIGHLIGHTS

### **Risk factors vary by time**

- ♥ In the past 13 years, only one risk factor significantly declined in prevalence, while two other risk factors significantly increased. Following is the percent change for these risk factors:

Cigarette smoking	-26%
Diabetes	+28%
Overweight	+50%

### **Risk factors vary by gender**

- ♥ Statewide, men are significantly more likely than women to be cigarette smokers, 21.6 percent vs. 16.8 percent, respectively.

### **Risk factors vary by race/ethnicity:**

- ♥ Hispanic women have a significantly lower prevalence of cigarette smoking (11.5%) compared to white (19.2%) and black (26.8%) women.
- ♥ Whites have a significantly lower prevalence of diabetes (4.3%) compared to blacks (14.5%) and Hispanics (12.9%).
- ♥ Black men demonstrate a significantly higher prevalence of high blood pressure (41.5%) compared to white (22.8%), Hispanic (22.1%), and other (15.6%) men.
- ♥ Hispanic women had the highest prevalence of overweight (42.7%). Significantly greater than the prevalence of overweight for other (16.3%) and white women (24.2%).

### **Risk factors vary within regions:**

- ♥ Contrary to the statewide sex-specific smoking prevalence, in the San Bernardino/Riverside region, white men (28.3%) demonstrate a significantly higher prevalence of cigarette smoking compared to white women (17.4%).
- ♥ Black women in the Bay Area (46.4%) have a significantly higher prevalence of high blood pressure compared to white (19.1%), Hispanic (23.2%), and other women (15.9%) in the same region.
- ♥ Within the San Diego region, white men are significantly more likely to be overweight (28.1%) compared to white women (18.9%) ( $p < 0.05$ ).
- ♥ Within the Los Angeles region, white women have a significantly lower prevalence of physical inactivity (52.1%) compared to black (63.1%) and Hispanic (69.6%) women.

*Statewide, men are significantly more likely than women to be cigarette smokers, 21.6 percent vs. 16.8 percent, respectively.*



## Highlights

### ***Risk factors vary between regions:***

- ♥ White women in the Northern and Central Mountain region (24.2%) have a significantly higher prevalence of cigarette smoking compared to white women in the Los Angeles region (16%).
- ♥ The Los Angeles region has a significantly lower prevalence of cigarette smoking for Hispanic women (6.9%) compared to Hispanic women in San Diego (16.3%).
- ♥ The prevalence of diabetes is more than double for Hispanic women in the Central Valley (17.9%) compared to Hispanic women in Los Angeles (7.6%) ( $p < 0.05$ ).
- ♥ The disparity in high blood pressure prevalence is more than two-fold between Hispanic women in San Bernardino/Riverside region (35%) compared to Hispanic women in the Northern Bay Area (14.2%) ( $p < 0.05$ ).
- ♥ White men are significantly more physically active and white women are significantly less likely to be overweight in the Central Coast compared to their respective group in the Northern Central Mountain region ( $p < 0.05$ ).

# Introduction

Cardiovascular disease (CVD), including heart disease and stroke, is one of California's most pressing medical and public health problems. Despite 30 years of declining CVD death rates, it remains the leading cause of death for both women and men of all race/ethnic groups. This year, CVD will account for more than 85,000 deaths statewide, divided about equally between men and women.<sup>1</sup> CVD is not only a disease of the elderly; an estimated one fifth of deaths attributed to CVD and 45 percent of all heart attacks occur in people younger than 65 years.<sup>2</sup> CVD is also a significant contributor to physical disability in the lives of many survivors.

Fortunately, many of the principal risk factors for CVD are clearly defined and largely preventable. These include elevated blood cholesterol, cigarette smoking, diabetes, high blood

pressure, overweight, and physical inactivity. Epidemiological research has shown that the presence of more than one risk factor increases the risk of CVD. For example, if a person has any three major controllable risk factors, such as high blood pressure, high blood cholesterol, and smoking, the risk of heart disease is seven times as great as a person with no risk factors, whereas, if a person has two of the risk factors the risk is three times as great.<sup>3</sup>

This document provides information on the prevalence of the major cardiovascular disease risk factors for the state of California and, for the first time, by ten regions in the state. Included in the report are data on cigarette smoking, diabetes, high blood pressure, overweight, and physical inactivity.

*This year, CVD will account for more than 85,000 deaths statewide, divided about equally between men and women.*

# Methods

## SAMPLE

Data are from the California Behavioral Risk Factor Surveillance System (BRFSS) Survey.<sup>4</sup> The survey is an ongoing effort by the California Department of Health Services in collaboration with the Centers for Disease Control and Prevention to assess the prevalence of, and trends in, health-related behaviors among California adults. Data are collected monthly from a random sample of California adults living in households with telephones. Since 1984, the BRFSS has interviewed 36,004 adults aged 18 and older.

## SAMPLE SELECTION

The BRFSS is conducted using a computer-assisted telephone interview (CATI) system. From 1984 through 1993, BRFSS participants were selected using the Waksberg method, a multi-stage cluster sampling technique designed to generate a random sample of all California households with telephones.<sup>5</sup> Beginning in 1994, California began using a screened random-digit dialing (RDD) sample purchased from a commercial sampling firm. Because of the absence of cluster sampling or stratification, the screened RDD does not introduce a design effect into the sample. All other data collection procedures have remained the same since 1984.

## QUESTIONNAIRE DESIGN

The BRFSS questionnaire is developed each year by the Centers for Disease Control and Prevention (CDCP) in collaboration with participating state agencies. Participants in the California BRFSS are asked about a wide variety of behaviors such as seat belt use, exercise, weight control, diet, tobacco and alcohol consumption, utilization

of cancer screening procedures, and other preventive measures. They are also asked for basic demographic information such as age, race/ethnicity, marital and employment status, household income, and education. Participation in the BRFSS is completely voluntary and anonymous.

## INTERVIEW PROCEDURES

Interviews are conducted by trained interviewers following standardized procedures developed by the (CDCP). All interviews are conducted by the CATI Unit, Cancer Surveillance Section, California Department of Health Services. In general, interviews are conducted during weekday evenings and on weekends. Interviews are conducted in either English or Spanish and take about 20 minutes to complete.

## SAMPLE CHARACTERISTICS

Through the sampling methods previously described, California attempts to collect interviews from a random sample that are representative of the population of the state.<sup>6</sup> Table 1 shows the combined, 1984 through 1996, sample size of the BRFSS dataset. In general, the distribution of race/ethnicity of the BRFSS sample is fairly close to the 1990 California Census population. Whites are somewhat over-represented in the sample, 66.7 percent BRFSS vs. 61.4 percent of California, while the other groups are under-represented. Blacks had about ten percent fewer interviews (6.1% vs. 6.7%) than expected, while Hispanics nearly 13 percent fewer interviews (19.9% vs. 22.4%), and persons of "other" race/ethnicity had 32 percent fewer interviews (7.1% vs 9.4%).

**TABLE 1: CHARACTERISTICS OF THE BRFSS SURVEY SAMPLE, 1984-1996**

		A G E C A T E G O R I E S						TOTAL
		18-24	25-34	35-44	45-54	55-64	65+	
SEX	RACE/ETHNICITY							
<b>MALE</b>	White	991	2,462	2,504	1,735	1,243	1,713	10,648
	Black	116	222	191	138	102	88	857
	Hispanic	623	1,136	742	360	205	166	3,232
	Other	166	374	344	152	88	82	1,206
	Sex Subtotal	1,896	4,194	3,781	2,385	1,638	2,049	15,943
<b>FEMALE</b>	White	1,147	2,657	2,900	2,050	1,610	3,015	13,379
	Black	177	388	310	187	134	147	1,343
	Hispanic	694	1,343	926	455	252	284	3,954
	Other	226	430	338	186	116	89	1,385
	Sex Subtotal	2,244	4,818	4,474	2,878	2,112	3,535	20,061
<b>Total</b>		<b>4,140</b>	<b>9,012</b>	<b>8,255</b>	<b>5,263</b>	<b>3,750</b>	<b>5,584</b>	<b>36,004</b>

## STATISTICAL ANALYSES

All interviews prior to 1994 were weighted to account for the probability of being drawn into the sample. This weighting procedure utilizes information on the number of adults in the household, the number of unique telephone numbers in the household, and the number of interviews completed within each cluster.

Three different weighting schemes were used, depending on the variable analyzed, to reflect the age-, race-, and/or sex-specific distribution of the 1990 California Census population. The race by gender prevalence rates used an age-adjusted weighting scheme, which allowed comparison of prevalence across race/ethnicity (white, black, Hispanic, other) and genders. This weight eliminates possible differences in the age distribution of each race and gender specific group and standardizes the estimate to the 1990 California population. The prevalence by education level and age group used a weight with four race groups (white, black, Hispanic, other), six age groups (18-24, 25-34, 35-44, 45-54, 55-64, 65+), and two genders

standardized to the 1990 California Census population. For calculation of prevalence across time, weights were based on race/ethnicity defined as white/nonwhite, where nonwhites include blacks, Hispanics and those of other race/ethnicity. This categorization was necessary due to the relatively small sample sizes of specific race/ethnic groups within a given year.

Interview data were analyzed using SAS and SUDAAN, which was designed specifically for calculating standard errors from data collected in a complex multistage sample survey. All significance testing for each risk factor is based on logistic regression in which other factors were controlled. For example, in order to determine the risk (or prevalence) for physical inactivity, it was used as the dependent variable and race, gender, education level and age were used as the independent variables. In addition, all two-way interactions were examined. SUDAAN and the Wald Chi-square statistic were used to test for trends over the 13 years, 1984-1996.

# Methods

**TABLE 2: TEN CALIFORNIA REGIONS**

REGION	COUNTIES
<b>NORTHERN AND CENTRAL MOUNTAIN</b>	Alpine, Butte, Calaveras, Colusa, Del Norte, Glenn, Humboldt, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Tuolumne, Yuba
<b>SACRAMENTO</b>	Amador, Eldorado, Nevada, Placer, Sacramento, Yolo
<b>NORTHERN BAY AREA</b>	Contra Costa, Marin, Napa, Solano, Sonoma
<b>BAY AREA</b>	Alameda, San Francisco, San Mateo, Santa Clara
<b>CENTRAL COAST</b>	Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Ventura
<b>CENTRAL VALLEY</b>	Fresno, Imperial, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare
<b>LOS ANGELES</b>	Los Angeles
<b>ORANGE</b>	Orange
<b>SAN BERNARDINO/RIVERSIDE</b>	San Bernardino, Riverside
<b>SAN DIEGO</b>	San Diego

## REGIONAL ANALYSIS

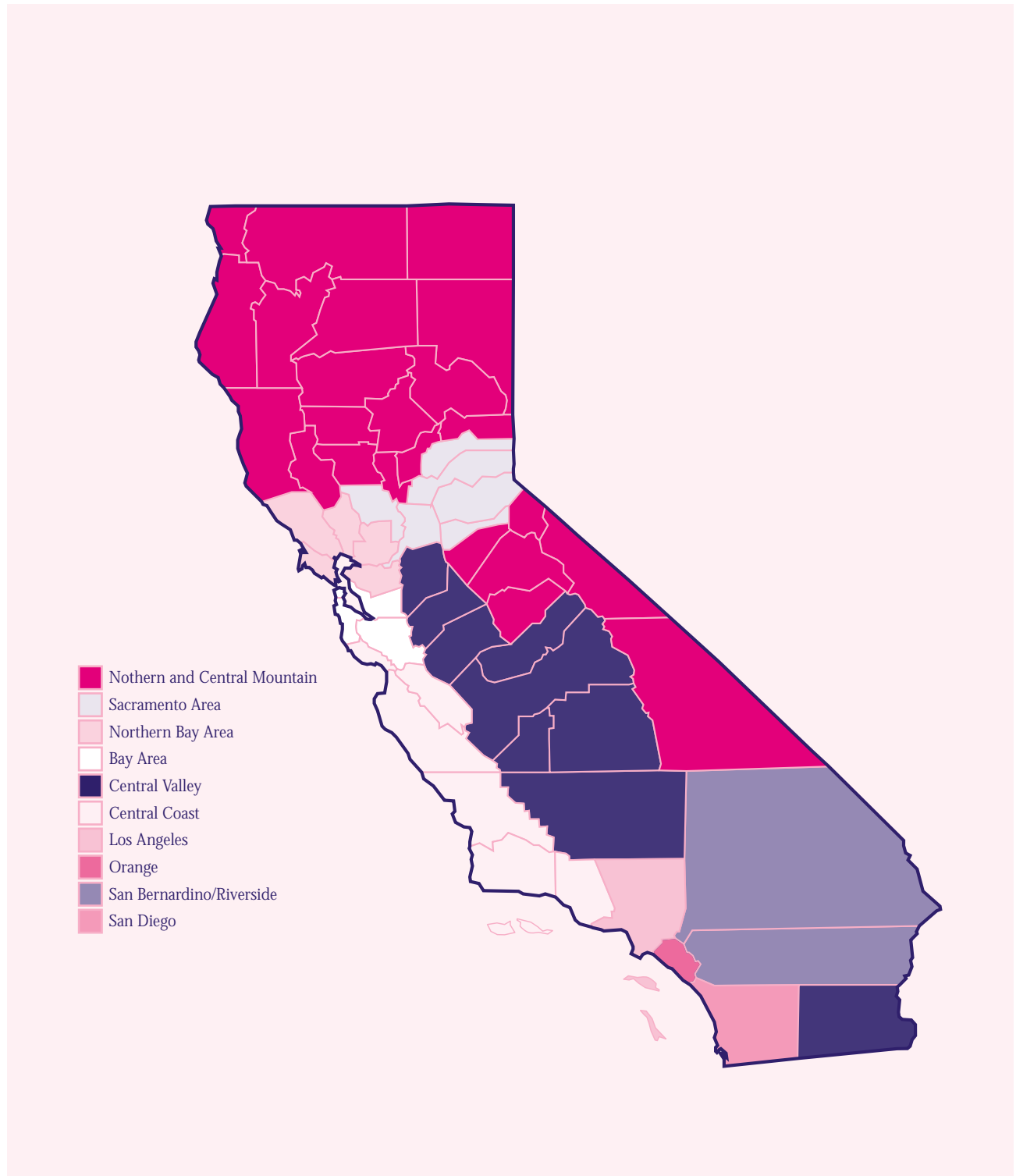
In order to examine the prevalence regionally of CVD risk factors collected by the BRFSS survey, we aggregated data for the years 1994-1996. Ten regions were created with respect to rurality and economic well-being.<sup>7,8</sup> The ten regions are shown in map 1 and the included counties for each region are listed in table 2. An index for each county was created and then used to group the counties accordingly. Variables used to create the index include: population density, average adjacent population, percent urban, percent families below poverty, percent persons 25 or older not completing high school, percent unemployed, and median family income.

County groupings into regions were kept as contiguous as possible. However, there are two regions where this does not occur: (1) The Northern and Central Mountain region which has counties split by the Sacramento Region. Given the indexes generated, it appeared that Nevada, Placer,

El Dorado, and Amador counties would fit more appropriately with the Sacramento Region; (2) The indexes calculated showed that Imperial County appeared to fit more appropriately with the Central Valley region rather than with either the San Diego or San Bernardino/Riverside regions.

Calculating the prevalence for each region required a special weighting scheme which was designed by the CATI Unit at the California Department of Health Services. The weighting scheme utilized six age groups (18-24, 25-34, 35-44, 45-54, 55-64, 65+). This allows the comparison of race- and gender-specific prevalence rates across and within regions. The 95% confidence intervals reported may be used to compare any region's race- and gender-specific prevalence to any other region's race and gender specific prevalence.

MAP 1: TEN REGIONS OF CALIFORNIA COUNTIES



## Results

The following section presents the results of analyses of five key behaviors or factors known to be causally associated with the occurrence of CVD. Each risk factor section contains a brief summary of the significance of the behavior and the definition of the behavior which is used in this report. The questions used in the BRFSS survey on which the definitions are based are provided in Appendix A.

Figures present trend of the statewide prevalence by gender. Subsequent figures and tables present prevalence rates by race/ethnicity and gender, age, and educational level for 1996. Education level is defined as: high school graduate or less education, some college and college graduate. All prevalence rates are weighted as discussed in the methods section of this report.

Prevalence of risk factors are presented in table format by region where the sample size is adequate. Maps in the following section present data, by gender and race/ethnicity (white or Hispanic), on the regional prevalence of the risk factors. Maps are only provided for white and Hispanic men and women because the partitioning of regions by gender and race/ethnicity limited the sample size in many areas for blacks and others.

Sample sizes and 95 percent confidence intervals of each point estimate are presented in tables throughout the results section. Comments within the body of this report on the significance of differences are based on these data. Differences between two point estimates for which confidence intervals do not overlap are considered to be statistically significant.

# Results - Cigarette Smoking

## STATEWIDE PREVALENCE

### CIGARETTE SMOKING

Cigarette smoking is the single most preventable cause of premature death and a significant contributor to CVD in California.<sup>9,10</sup> It is estimated that in California alone, cigarette smoking caused more than 42,000 deaths in 1989, with CVD the leading cause of smoking-attributable deaths.<sup>9,11</sup> Economically, cigarette smoking costs Californians an estimated 7.6 billion dollars every year.<sup>9</sup>

It is widely accepted that a smoker's risk of heart attack is more than twice that of nonsmokers.<sup>12</sup> Smoking is also known to increase the risk of stroke by

40 percent in men and 60 percent in women.<sup>12</sup> On average, smokers die seven years earlier than nonsmokers (CDC, Office on Smoking and Health, unpublished data, 1994). Encouraging are the findings that when people stop smoking, regardless of how long they smoked, their risk of heart disease and stroke rapidly declines.<sup>13</sup>

### DEFINITION

Respondents who state that they have smoked at least one hundred cigarettes in their lifetime and who currently smoke cigarettes are considered smokers.

*It is estimated that in California alone, cigarette smoking caused more than 42,000 deaths in 1989, with CVD the leading cause of smoking-attributable deaths.*

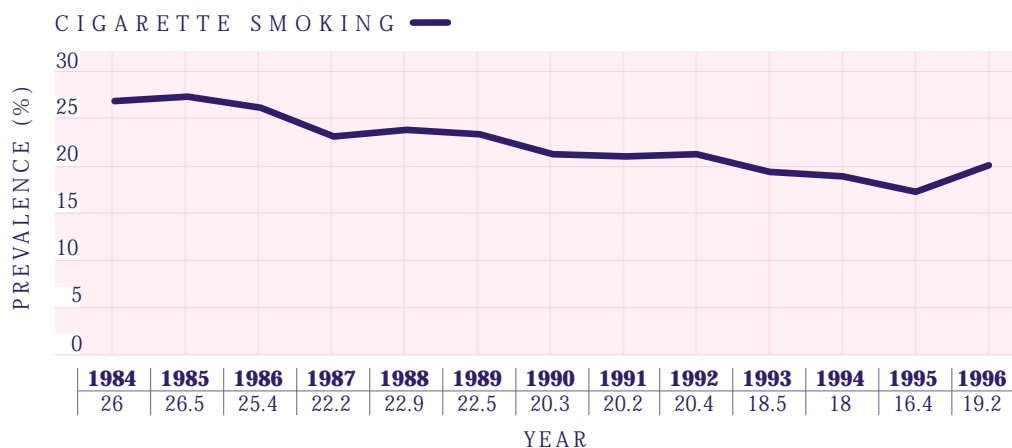
## RESULTS

### Statewide Prevalence

From 1984 to 1996, the prevalence of cigarette smoking among California adults significantly declined 26 percent from 26 percent in 1984 to 19.2 percent in 1996 ( $p < 0.0001$ ) (figure 1). For both men and women there has been a statistically significant decline in cigarette smoking during the 13 years ( $p < 0.01$ ) (figure 2). For men, smoking prevalence declined

34 percent, from 28.7 percent in 1984 to a low of 18.9 percent in 1995. For women, smoking declined nearly 41 percent, from 23.4 percent in 1984 to a low of 13.9 percent in 1995. In 1996, women (16.8 %) had a significantly lower prevalence of cigarette smoking compared to men (21.6 %) ( $p < 0.05$ ) (table 3).

**FIGURE 1: PREVALENCE OF CIGARETTE SMOKING AMONG CALIFORNIA ADULTS, 1984-1996**



Trend is significant,  $p < 0.0001$

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

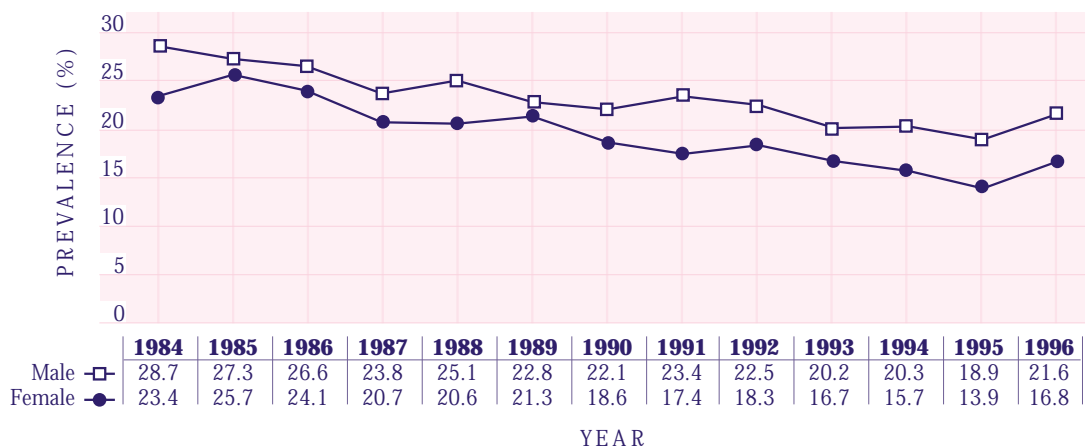
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# Results - Cigarette Smoking

## STATEWIDE PREVALENCE

**FIGURE 2: PREVALENCE OF CIGARETTE SMOKING AMONG CALIFORNIA ADULTS BY GENDER, 1984-1996**



Trend is significant for men,  $p < 0.01$  and for women,  $p < 0.01$ .

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

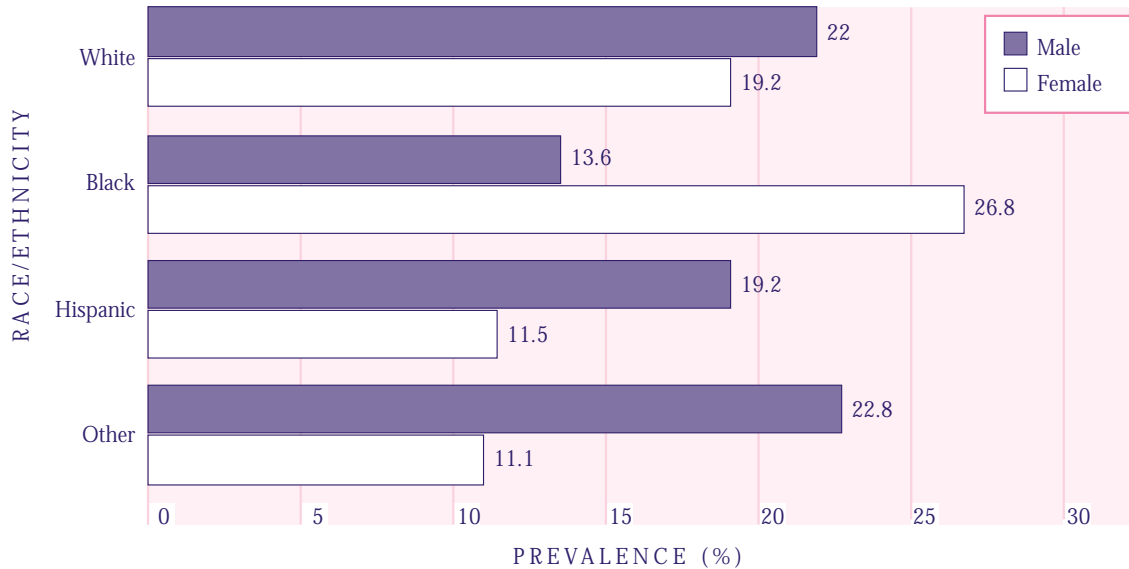
**TABLE 3: PREVALENCE OF CIGARETTE SMOKING AMONG CALIFORNIA ADULTS, 1996**

		SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Overall</b>		<b>3927</b>	<b>19.2</b>	<b>(18.0, 20.4)</b>
<b>Gender</b>	Male	1719	21.6	(19.7, 23.6)
	Female	2208	16.8	(15.2, 18.3)
<b>Male</b>	White	1134	22.0	(19.6, 24.4)
	Black	86	13.6	(6.4, 20.9)
	Hispanic	378	19.2	(15.2, 23.1)
	Other	127	22.8	(15.5, 30.1)
<b>Female</b>	White	1467	19.2	(17.2, 21.2)
	Black	121	26.8	(18.9, 34.7)
	Hispanic	487	11.5	(8.7, 14.4)
	Other	148	11.1	(6.0, 16.1)
<b>Age</b>	18-24	385	23.8	(19.5, 28.0)
	25-34	832	20.1	(17.3, 22.8)
	35-44	894	20.4	(17.8, 23.1)
	45-54	704	20.9	(17.9, 23.9)
	55-64	446	18.5	(14.9, 22.1)
	65+	687	10.3	(8.1, 12.6)
<b>Education Level</b>	Less than or equal to High School Graduate	1559	23.5	(21.4, 25.6)
	Some College	1071	20.8	(18.4, 23.3)
	College Graduate	1286	11.7	(9.9, 13.5)

# Results - Cigarette Smoking

## STATEWIDE PREVALENCE

**FIGURE 3: PREVALENCE OF CIGARETTE SMOKING AMONG CALIFORNIA ADULTS BY RACE AND GENDER, 1996**



*Data age- adjusted to 1990 California population*

*Source: California Behavioral Risk Factor Surveillance System*

*Prepared by: CORE Program, University of California San Francisco and California Department of Health Services*

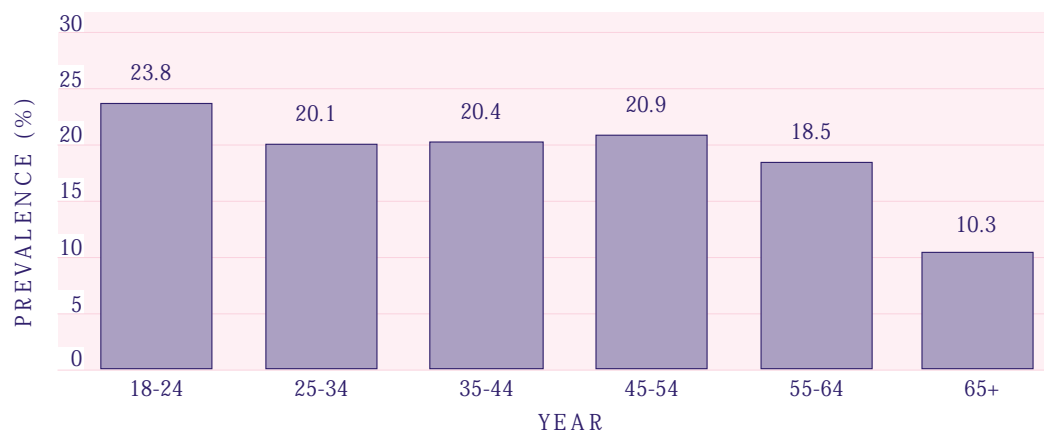
Figure 3 shows the prevalence of cigarette smoking among California adults by race and gender for 1996. There are differences in smoking by race/ethnicity. The prevalence is highest among black women (26.8%). Other and Hispanic women demonstrate significantly lower smoking prevalence, 11.1 percent and

11.5 percent, respectively, compared to white (19.2%) and black (26.8%) women (table 3). Within each race/ethnic group, except blacks, men demonstrate a higher prevalence of smoking compared to women. However, only among Hispanics is there a significant gender difference ( $p < 0.05$ ) (table 3).

# Results - Cigarette Smoking

## STATEWIDE PREVALENCE

**FIGURE 4: PREVALENCE OF CIGARETTE SMOKING AMONG CALIFORNIA ADULTS BY AGE GROUP, 1996**

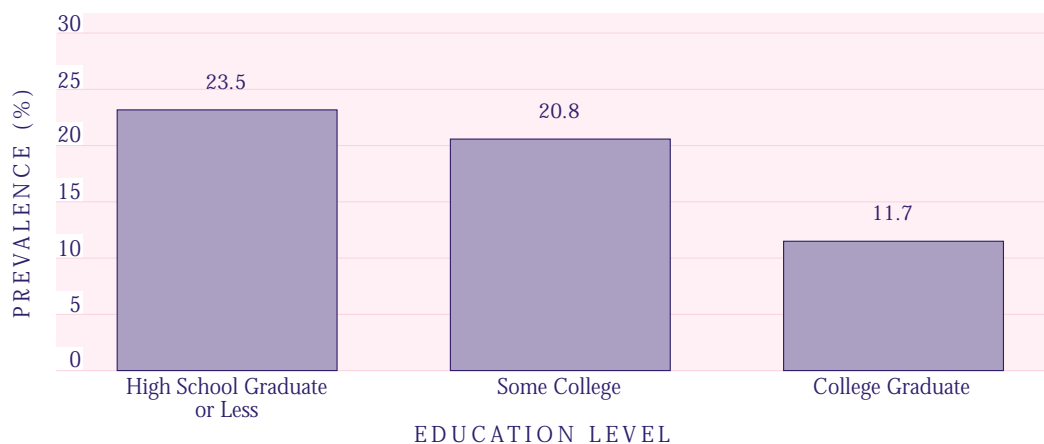


Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**FIGURE 5: PREVALENCE OF CIGARETTE SMOKING AMONG CALIFORNIA ADULTS BY EDUCATION LEVEL, 1996**



Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

In 1996, the prevalence of smoking for those 65+ years of age is significantly lower than for the other age groups presented (figure 4 and table 2). Figure 5 shows the prevalence of smoking by education level for 1996. In general,

these data show that the higher the education level the lower the prevalence of smoking. College graduates are significantly less likely to smoke compared to people with some college or less education ( $p < 0.05$ , table 3).

# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

Table 4 shows the prevalence and 95% confidence intervals for cigarette smoking for ten regions in California by gender and race/ethnicity. Only for the Bay Area (excluding black men) and Los Angeles regions do we have adequate sample size to calculate prevalence for the eight gender and race/ethnic group combinations. For the remaining regions, we display the prevalence of smoking for white and Hispanic men and women.

Within regions, except for the San Bernardino/Riverside and Los Angeles areas, the prevalence of cigarette smoking does not differ significantly between white men and white women. In the San Bernardino/Riverside region, white men have a significantly higher prevalence of smoking (28.3%) compared to white women (17.4%). In Los Angeles the same trend was found, white women have a significantly lower prevalence of cigarette smoking (16%) compared to white men (23.5%). For Hispanics, only in the Los Angeles region does the prevalence of smoking differ significantly between men and women, 19.5 percent and 6.9 percent, respectively.

Maps 2-5 show the prevalence and regional ranking of cigarette smoking for white and Hispanic men and women. Among white men, those

from the San Bernardino/Riverside region have a significantly higher prevalence of cigarette smoking, 28.3 percent, compared to the other regions, except for men from the Northern and Central Mountain (21.3%) or Los Angeles areas (23.5%) (map 2, table 4). Among Hispanic men (map 3), those from the Bay Area have the highest prevalence of smoking (21.4%), however, there are no significant differences in the smoking prevalence between regions for Hispanic men (table 4). The Northern and Central Mountain region (24.2%) has smoking prevalence significantly higher than the Los Angeles region for white women (16%) (map 4, table 4). For Hispanic women, the Northern Bay Area has the highest prevalence (19.1%); but not significantly different from the other regions (map 5, table 4). Los Angeles, however, has a significantly lower prevalence of smoking for Hispanic women (6.9%) compared to Hispanic women in San Diego (16.3%).

For more information on cigarette smoking, other than what is presented in this report, please contact the California Tobacco Control Program, Cancer Control Branch, California Department of Health Services, at (916) 327-5425.

# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

TABLE 4: PREVALENCE OF CIGARETTE SMOKING FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Northern &amp; Central Mountain</b>	Male	White	227	21.3	(16.0, 26.6)
		Black	3	.	.
		Hispanic	20	.	.
		Other	7	.	.
	Female	White	250	24.2	(18.9, 29.5)
		Black	1	.	.
		Hispanic	19	.	.
		Other	9	.	.
<b>Sacramento Area</b>	Male	White	237	18.1	(13.2, 23.0)
		Black	23	.	.
		Hispanic	33	.	.
		Other	22	.	.
	Female	White	292	17.9	(13.5, 22.3)
		Black	19	.	.
		Hispanic	56	11.4	(3.1, 19.8)
		Other	24	.	.
<b>Northern Bay Area</b>	Male	White	313	19.8	(15.4, 24.3)
		Black	18	.	.
		Hispanic	45	.	.
		Other	35	.	.
	Female	White	364	16.1	(12.4, 19.9)
		Black	31	.	.
		Hispanic	50	19.1	(8.2, 30.0)
		Other	36	.	.
<b>Bay Area</b>	Male	White	473	14.5	(11.3, 17.7)
		Black	40	.	.
		Hispanic	126	21.4	(14.3, 28.6)
		Other	99	19.3	(11.5, 27.1)
	Female	White	519	17.9	(14.6, 21.2)
		Black	72	24.3	(14.4, 34.2)
		Hispanic	133	10.1	(5.0, 15.2)
		Other	96	11.7	(5.2, 18.1)
<b>Central Valley</b>	Male	White	292	16.7	(12.4, 20.9)
		Black	10	.	.
		Hispanic	155	15.3	(9.7, 21.0)
		Other	19	.	.
	Female	White	451	18.7	(15.1, 22.2)
		Black	24	.	.
		Hispanic	197	10.6	(6.3, 15.0)
		Other	40	.	.

# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

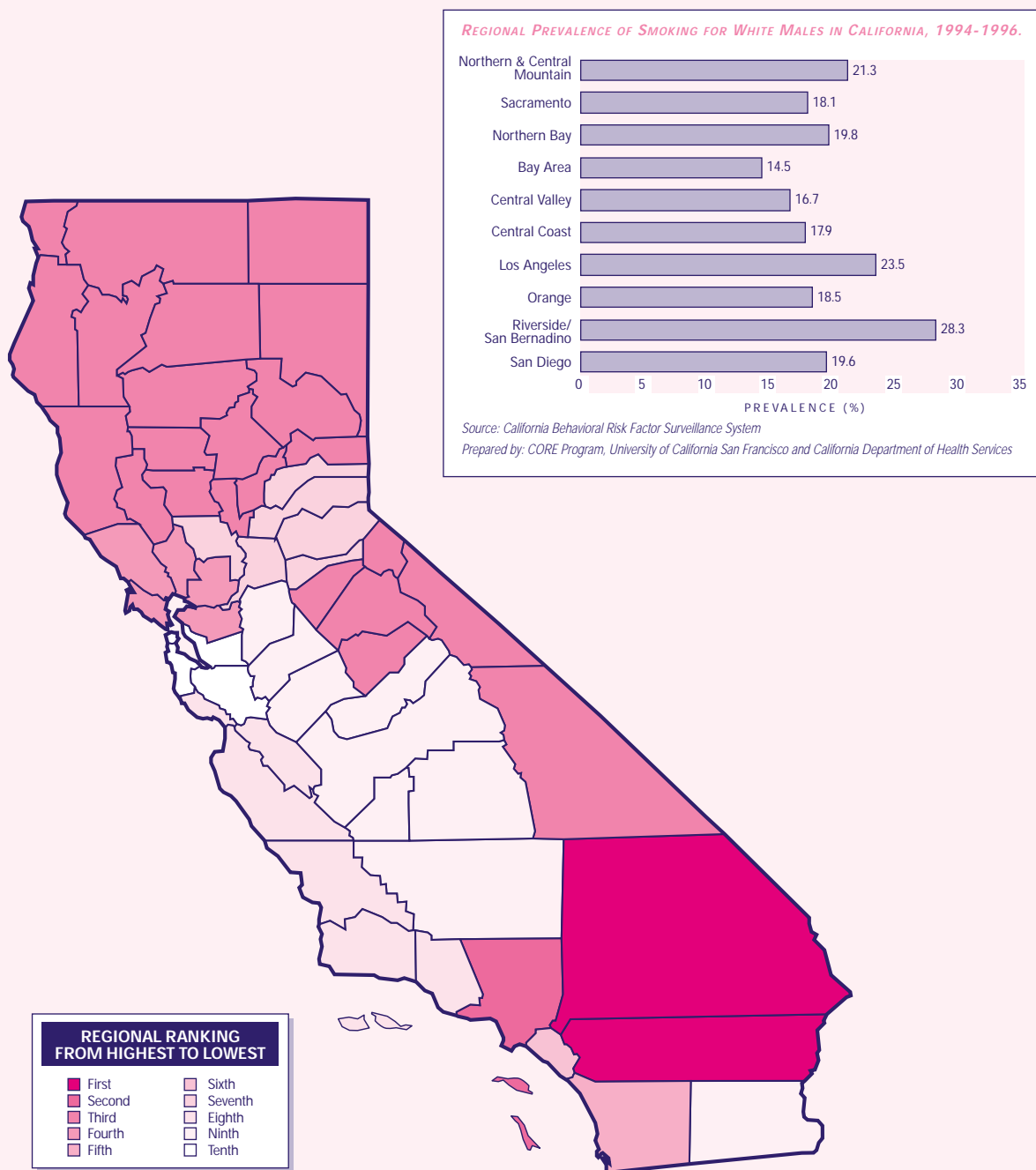
**TABLE 4: PREVALENCE OF CIGARETTE SMOKING FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Central Coast</b>	Male	White	251	17.9	(13.2, 22.6)
		Black	8	.	.
		Hispanic	72	16.6	(8.0, 25.2)
		Other	12	.	.
	Female	White	323	17.0	(12.9, 21.1)
		Black	3	.	.
		Hispanic	87	6.3	(1.2, 11.4)
		Other	14	.	.
<b>Los Angeles</b>	Male	White	635	23.5	(20.2, 26.7)
		Black	123	19.3	(12.3, 26.3)
		Hispanic	435	19.5	(15.8, 23.2)
		Other	121	14.7	(8.4, 21.0)
	Female	White	771	16.0	(13.4, 18.6)
		Black	184	15.2	(10.0, 20.4)
		Hispanic	582	6.9	(4.9, 9.0)
		Other	135	7.2	(2.8, 11.6)
<b>Orange</b>	Male	White	281	18.5	(14.0, 23.1)
		Black	6	.	.
		Hispanic	89	16.3	(8.6, 24.0)
		Other	34	.	.
	Female	White	339	17.0	(13.0, 21.0)
		Black	6	.	.
		Hispanic	86	11.9	(5.1, 18.8)
		Other	34	.	.
<b>San Bernardino &amp; Riverside</b>	Male	White	353	28.3	(23.6, 33.0)
		Black	26	.	.
		Hispanic	120	10.8	(5.3, 16.4)
		Other	21	.	.
	Female	White	430	17.4	(13.8, 21.0)
		Black	29	.	.
		Hispanic	143	11.0	(5.9, 16.2)
		Other	21	.	.
<b>San Diego</b>	Male	White	336	19.6	(15.4, 23.4)
		Black	15	.	.
		Hispanic	101	9.2	(3.6, 14.9)
		Other	28	.	.
	Female	White	451	18.4	(14.9, 22.0)
		Black	20	.	.
		Hispanic	122	16.3	(9.7, 22.8)
		Other	50	19.0	(8.1, 29.9)

# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

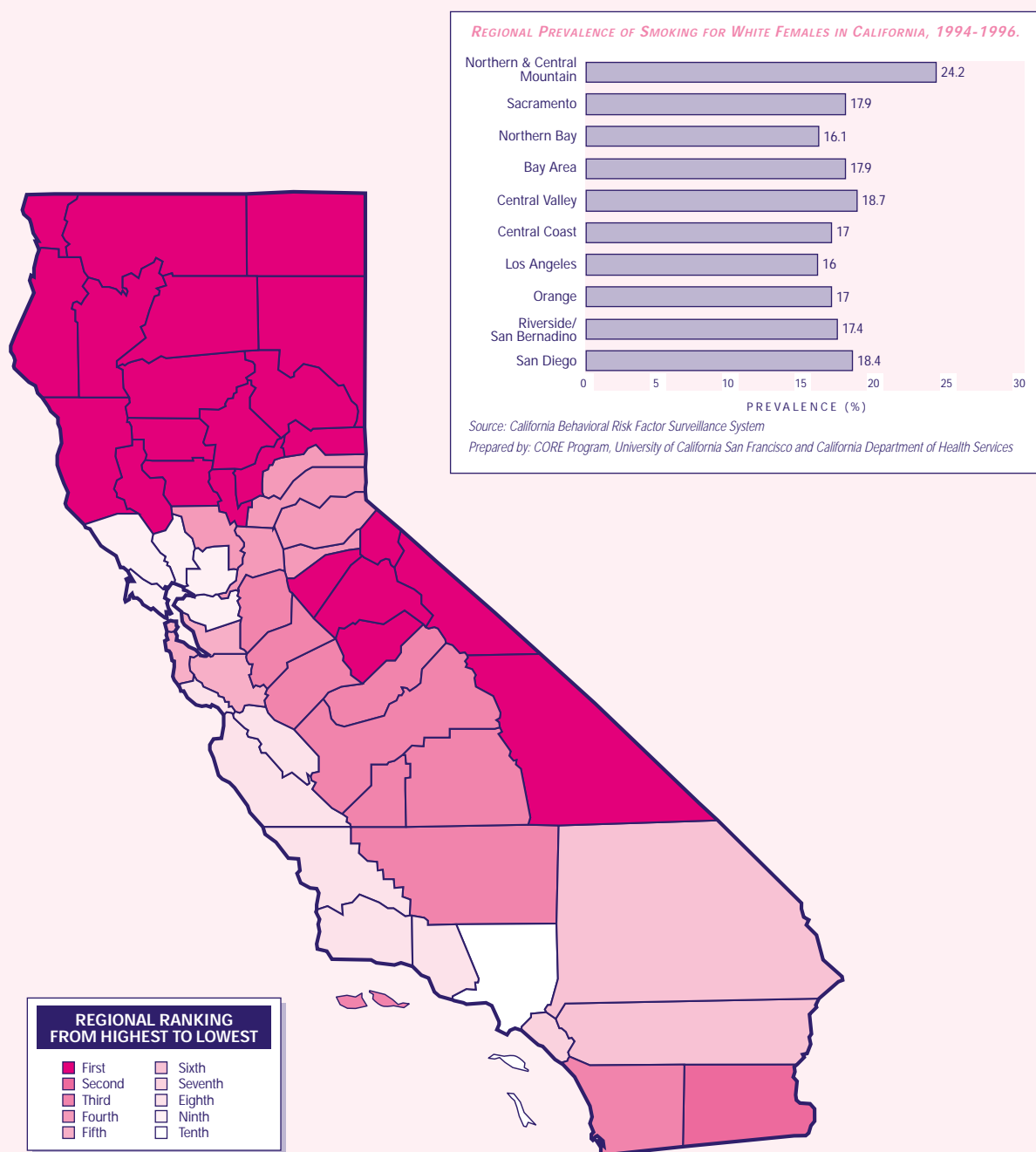
MAP 2: PREVALENCE OF CIGARETTE SMOKING FOR WHITE MALES BY REGION  
IN CALIFORNIA, 1994-1996



# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

MAP 3: PREVALENCE OF CIGARETTE SMOKING FOR WHITE FEMALES BY REGION  
IN CALIFORNIA, 1994-1996

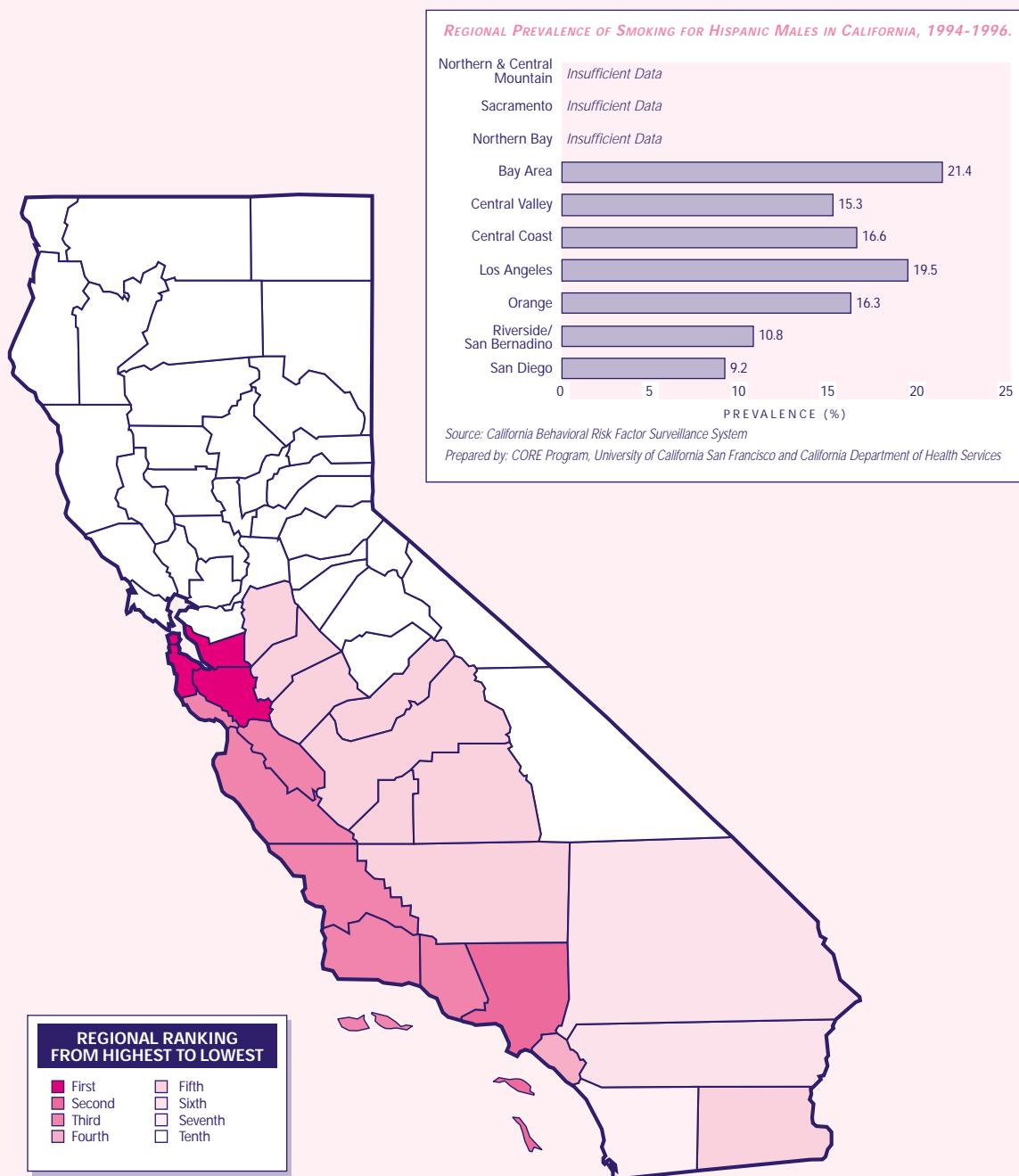




# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

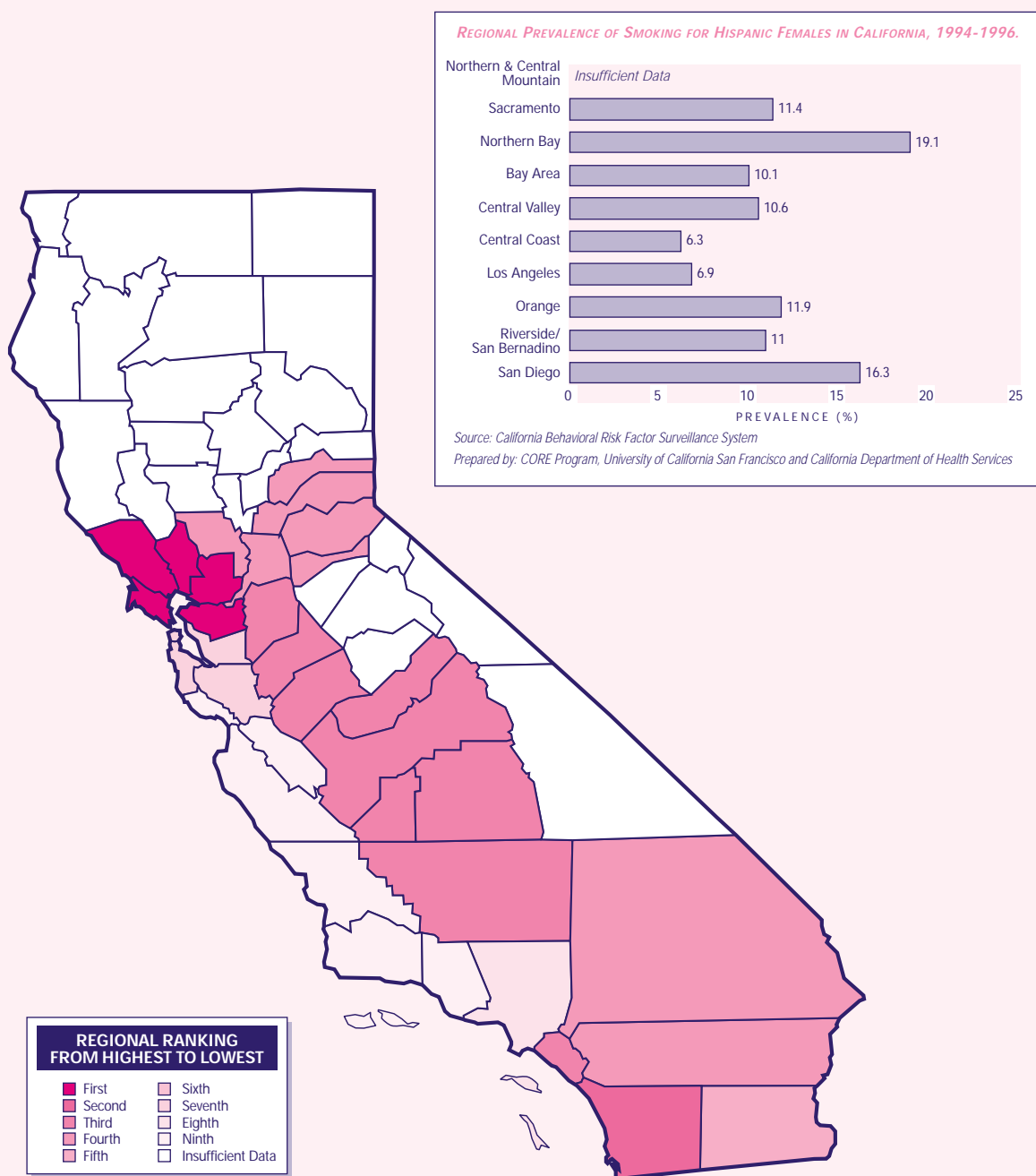
MAP 4: PREVALENCE OF CIGARETTE SMOKING FOR HISPANIC MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Cigarette Smoking

## REGIONAL DISTRIBUTION

MAP 5: PREVALENCE OF CIGARETTE SMOKING FOR HISPANIC FEMALES BY REGION  
IN CALIFORNIA, 1994-1996



## Results - Diabetes

*More than  
80 percent of  
people with diabetes  
die from some  
form of CVD*

Diabetes is the inability of the body to metabolize or use glucose (sugar) properly. It appears most often in middle age and in overweight people. It is well documented that diabetes increases the risk for heart disease and stroke.<sup>14,15</sup> Persons with diabetes are two to four times more likely to die from coronary heart disease, and twice as likely to die from stroke, compared to persons without diabetes.<sup>14</sup> In fact, more than 80 percent of people with diabetes die from some form of CVD.<sup>15</sup>

In a recent trend analysis of hospital discharge rates for diabetes by the Centers for Disease Control, the

discharge rates of persons with diabetes who also have heart disease or have had a stroke increased by as much as 45 percent from 1980 to 1990.<sup>15</sup> The largest increase for the period was for stroke.<sup>15</sup> In 1990, about 32 percent of all diabetes-related hospital discharges had CVD as the primary diagnosis.<sup>15</sup>

### DEFINITION

Respondents considered to have diabetes are those who stated they had been told by a doctor that they have diabetes.<sup>4</sup>

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## RESULTS

### **Statewide Prevalence**

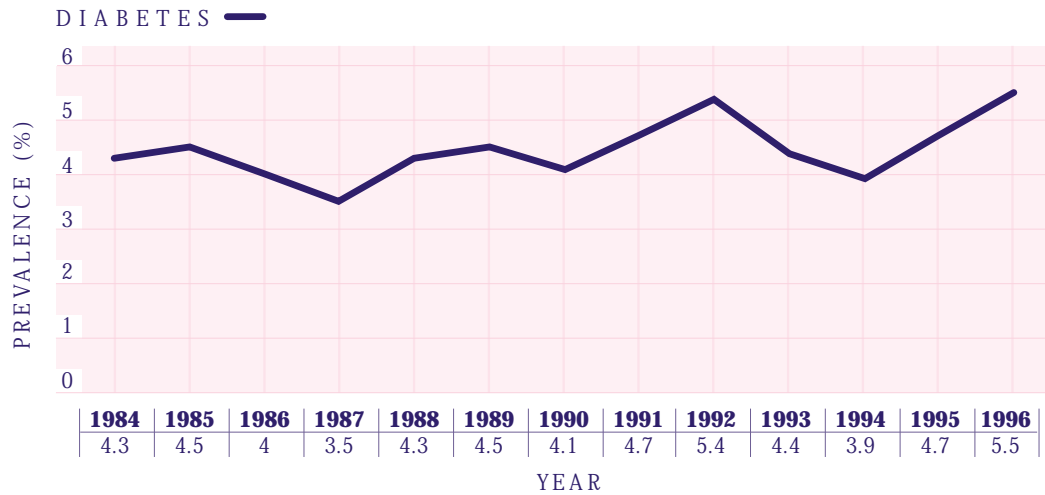
The prevalence of diabetes among California adults, genders combined, increased significantly over the past 13 years ( $p=0.001$ ). The majority of this increase may be accounted for by the

23% rise in prevalence of diabetes among women (figure 6). When viewed by gender, the prevalence of diabetes has significantly increased for women ( $p=0.01$ ), but not for men

# Results - Diabetes

## STATEWIDE PREVALENCE

**FIGURE 6: PREVALENCE OF DIABETES AMONG CALIFORNIA ADULTS, 1984-1996**



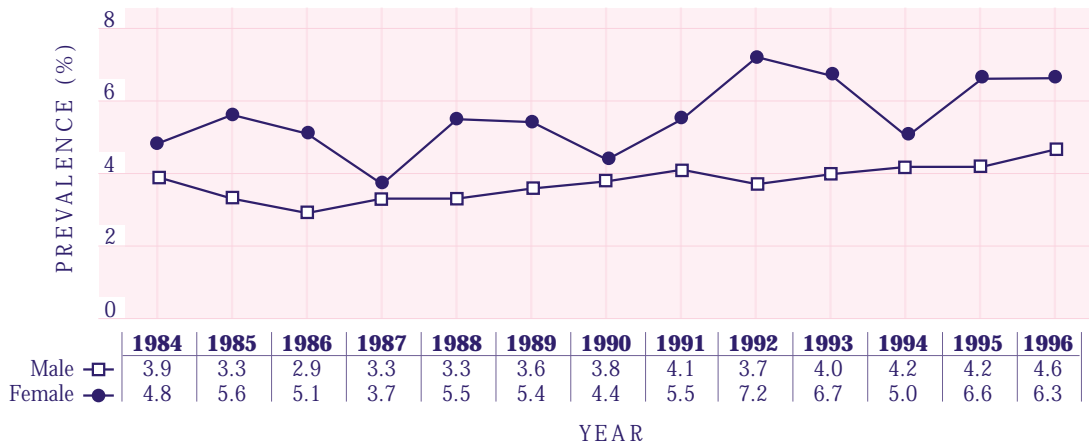
Trend is significant,  $p=0.001$

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**FIGURE 7: PREVALENCE OF DIABETES AMONG CALIFORNIA ADULTS BY GENDER, 1984-1996**



Trend is significant for women,  $p=0.01$ , but not for men,  $p=0.09$ .

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

# Results - Diabetes

## STATEWIDE PREVALENCE

**TABLE 5: PREVALENCE OF DIABETES AMONG CALIFORNIA ADULTS, 1996**

		SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Overall</b>		<b>3925</b>	<b>5.5</b>	<b>(4.7, 6.2)</b>
<b>Gender</b>	Male	1717	4.6	(3.6, 5.6)
	Female	2208	6.3	(5.3, 7.3)
<b>Race</b>	White	2602	4.3	(3.5, 5.0)
	Black	208	14.5	(9.7, 19.3)
	Hispanic	863	12.9	(10.7, 15.2)
	Other	273	7.6	(4.5, 10.8)
<b>Age</b>	18-24	386	1.6	(0.3, 2.8)
	25-34	828	3.0	(1.9, 4.2)
	35-44	893	3.6	(2.4, 4.8)
	45-54	707	6.1	(4.4, 7.9)
	55-64	447	9.8	(7.1, 12.6)
	65+	685	13.8	(11.3, 16.4)
<b>Education Level</b>	Less than or equal to High School Graduate	1560	7.2	(5.9, 8.5)
	Some College	1070	4.8	(3.5, 6.1)
	College Graduate	1284	4.0	(2.9, 5.1)

Figure 8 shows the prevalence of diabetes by race for 1996. There are significant differences in diabetes prevalence by race/ethnicity. However, since the sample sizes for the different race/ethnic groups for diabetes are small, caution must be used when interpreting the data. In general, Hispanics (12.9%) and blacks (14.5%) have a significantly higher prevalence of diabetes compared to whites (4.3%) (table 5). Figure 9 shows the prevalence of diabetes among California adults by age for 1996. Not surprisingly, the prevalence

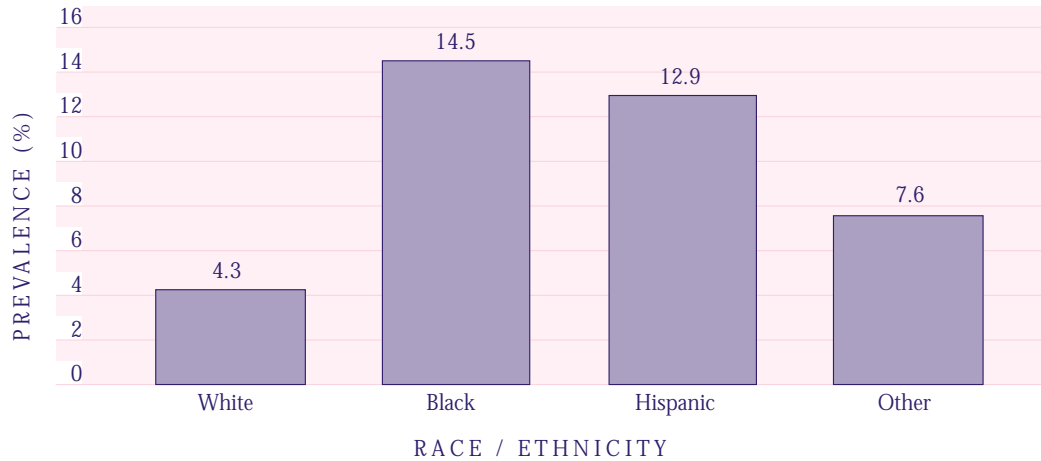
of diabetes significantly increases with advancing age, from less than two percent for those 18 to 24 years of age to almost 14 percent for those over 65 years (table 5).

Interestingly, but consistent with other chronic diseases, the prevalence of diabetes decreases significantly with increasing education level (figure 10, table 5). The prevalence of diabetes is almost 40 percent greater among persons with a high school education or less (7.2%) compared to those who graduated from college (4%).

# Results - Diabetes

## STATEWIDE PREVALENCE

**FIGURE 8: PREVALENCE OF DIABETES AMONG CALIFORNIA ADULTS BY RACE, 1996**

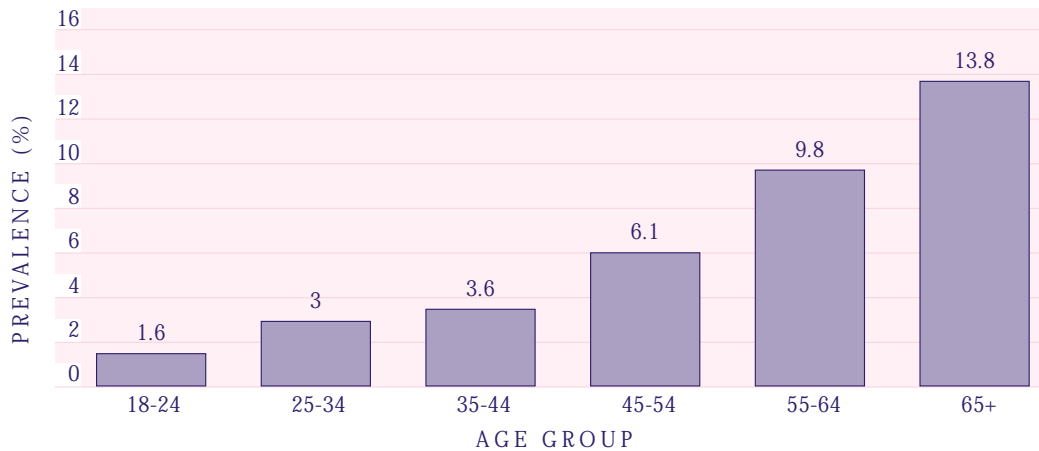


*Data age-adjusted to the 1990 California population*

*Source: California Behavioral Risk Factor Surveillance System*

*Prepared by: CORE Program, University of California San Francisco and California Department of Health Services*

**FIGURE 9: PREVALENCE OF DIABETES AMONG CALIFORNIA ADULTS BY AGE GROUP, 1996**



*Weighted to the age-, race- and sex-specific distribution of the 1990 California population*

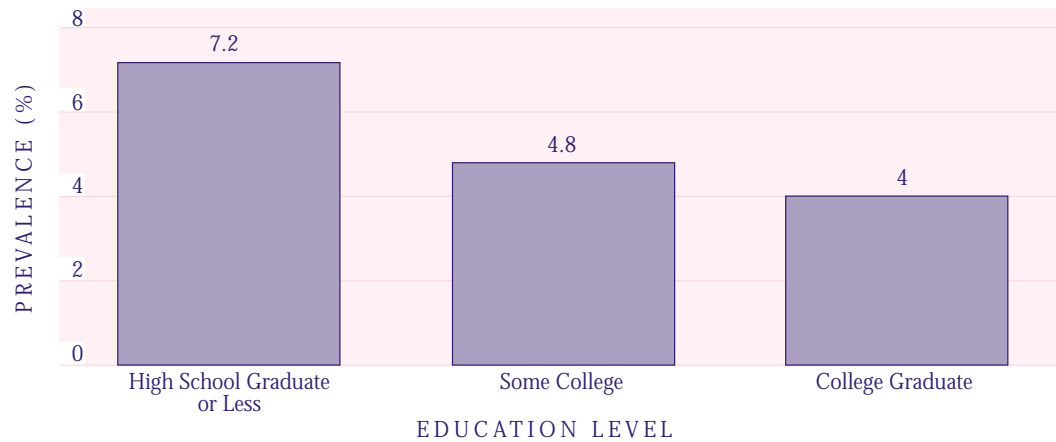
*Source: California Behavioral Risk Factor Surveillance System*

*Prepared by: CORE Program, University of California San Francisco and California Department of Health Services*

# Results - Diabetes

## STATEWIDE PREVALENCE

FIGURE 10: PREVALENCE OF DIABETES AMONG CALIFORNIA ADULTS BY EDUCATION LEVEL, 1996



Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

## Results - Diabetes

### REGIONAL DISTRIBUTION

Table 6 shows the prevalence and 95% confidence intervals for diabetes for ten regions in California by gender and race/ethnicity. Data were aggregated for the years 1994-1996. Only for the Los Angeles region do we have adequate sample size to calculate prevalence rates for most gender and race/ethnic group combinations. For almost half of the remaining regions we display the prevalence of diabetes for white and Hispanic men and women.

Map 6 shows the regional prevalence and ranking of diabetes for white men in California, 1994-1996. The geographic area with the highest prevalence of diabetes (7%) is along the Central Coast, but it is not significantly different from the prevalence reported for other regions in the state. The rate for white men (7%) in the Central Coast, however, is significantly greater compared to white women (1.9%) in the same region. The prevalence of diabetes among Hispanic men is highest in Los Angeles, but not statistically significant from the prevalence for Hispanic men in other regions of the state (map 7, table 6).

Within the Los Angeles region, Hispanic men have a significantly higher prevalence of diabetes (13.6%) compared to white men (4.2%). Hispanic men in the Central Coast have the lowest prevalence of diabetes (5.3%). Map 8 shows the prevalence of diabetes for white women in California. The Los Angeles region has a significantly higher prevalence of diabetes, 5.2 percent, compared to that for the Bay Area, 2.2 percent (table 6).

Of the regions analyzed for the prevalence of diabetes for Hispanic women, the Central Valley has the highest prevalence (17.9%), significantly higher compared to the Los Angeles region (7.6%) (map 9, table 6). Within the Central Valley, the prevalence of diabetes is significantly higher for Hispanic women compared to white women (4.9%) (table 6).

For more information on diabetes, other than what is contained in this report, please contact the Diabetes Control Program, Chronic Disease Control Branch, California Department of Health Services, (916) 324-2281.



# Results - Diabetes

## REGIONAL DISTRIBUTION

**TABLE 6: PREVALENCE OF DIABETES FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Northern &amp; Central Mountain</b>	Male	White	227	3.4	(1.0, 5.7)
		Black	3	.	.
		Hispanic	20	.	.
		Other	8	.	.
	Female	White	250	4.9	(2.2, 7.6)
		Black	2	.	.
		Hispanic	19	.	.
		Other	9	.	.
<b>Sacramento Area</b>	Male	White	237	4.1	(1.6, 6.6)
		Black	23	.	.
		Hispanic	33	.	.
		Other	22	.	.
	Female	White	293	2.6	(0.8, 4.5)
		Black	19	.	.
		Hispanic	56	.	.
		Other	24	.	.
<b>Northern Bay Area</b>	Male	White	314	2.9	(1.0, 4.7)
		Black	18	.	.
		Hispanic	45	.	.
		Other	35	.	.
	Female	White	364	4.5	(2.3, 6.6)
		Black	31	.	.
		Hispanic	50	.	.
		Other	36	.	.
<b>Bay Area</b>	Male	White	474	3.6	(2.0, 5.3)
		Black	40	.	.
		Hispanic	125	6.6	(2.2, 10.9)
		Other	97	.	.
	Female	White	521	2.2	(0.9, 3.4)
		Black	72	15.1	(6.9, 23.4)
		Hispanic	133	.	.
		Other	96	.	.
<b>Central Valley</b>	Male	White	291	5.1	(2.6, 7.6)
		Black	10	.	.
		Hispanic	153	12.3	(7.1, 17.5)
		Other	19	.	.
	Female	White	455	4.9	(2.9, 6.9)
		Black	24	.	.
		Hispanic	197	17.9	(12.6, 23.3)
		Other	40	.	.

# Results - Diabetes

## REGIONAL DISTRIBUTION

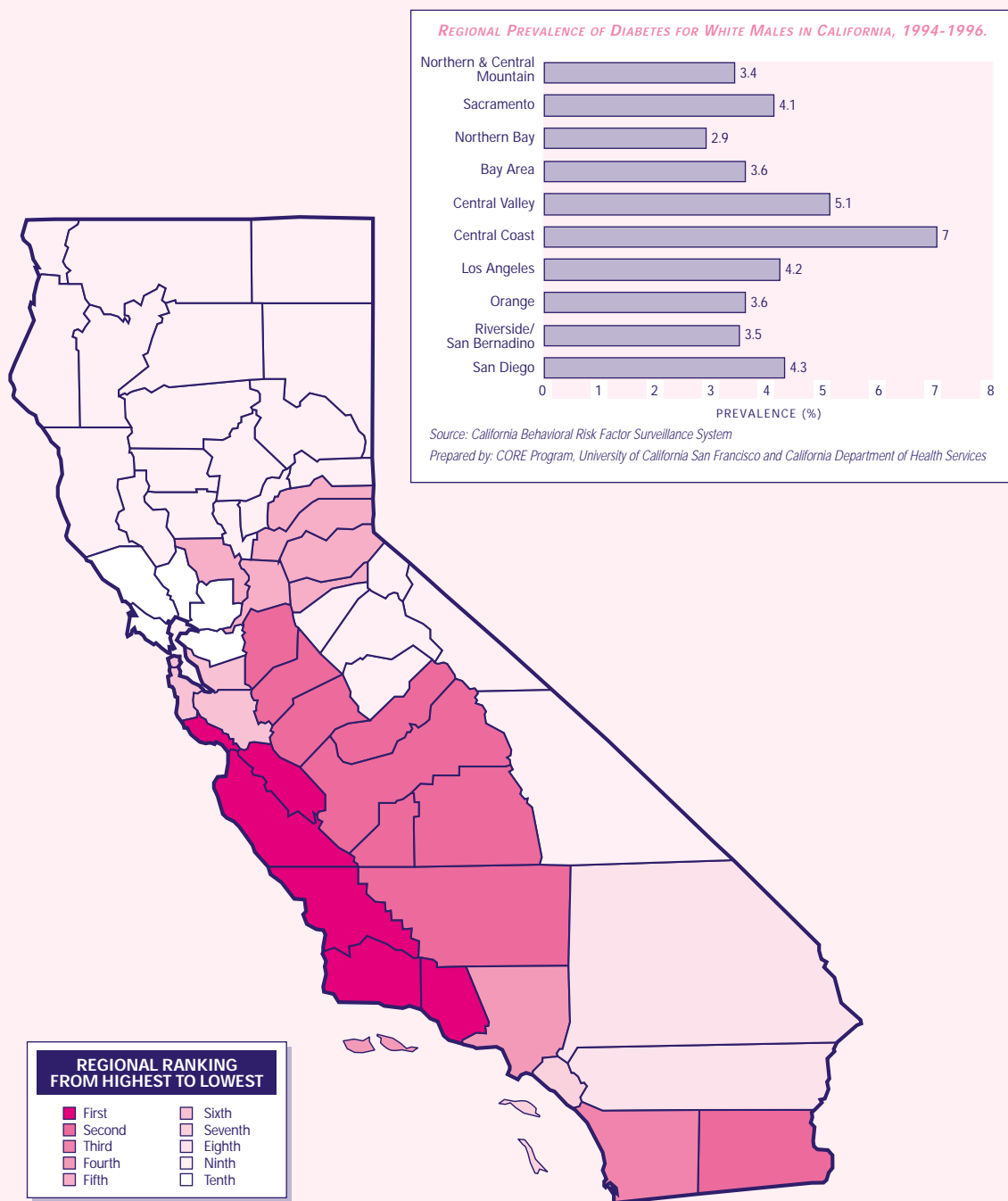
**TABLE 6: PREVALENCE OF DIABETES FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Central Coast</b>	Male	White	251	7.0	(3.9, 10.2)
		Black	8	.	.
		Hispanic	72	5.3	(0.1, 10.5)
		Other	12	.	.
	Female	White	324	1.9	(0.4, 3.5)
		Black	4	.	.
		Hispanic	88	.	.
		Other	14	.	.
<b>Los Angeles</b>	Male	White	634	4.2	(2.7, 5.8)
		Black	123	12.9	(7.0, 18.8)
		Hispanic	435	13.6	(10.4, 16.8)
		Other	120	9.1	(3.9, 14.2)
	Female	White	771	5.2	(3.6, 6.7)
		Black	186	15.4	(10.3, 20.6)
		Hispanic	583	7.6	(5.4, 9.7)
		Other	134	.	.
<b>Orange</b>	Male	White	281	3.6	(1.4, 5.8)
		Black	6	.	.
		Hispanic	90	6.7	(1.5, 11.8)
		Other	34	.	.
	Female	White	339	3.7	(1.7, 5.7)
		Black	6	.	.
		Hispanic	86	9.9	(3.6, 16.2)
		Other	34	.	.
<b>San Bernardino &amp; Riverside</b>	Male	White	353	3.5	(1.6, 5.4)
		Black	26	.	.
		Hispanic	120	11.6	(6.0, 17.3)
		Other	22	.	.
	Female	White	430	4.3	(2.4, 6.2)
		Black	29	.	.
		Hispanic	143	16.5	(10.5, 22.6)
		Other	21	.	.
<b>San Diego</b>	Male	White	337	4.3	(2.1, 6.5)
		Black	15	.	.
		Hispanic	102	9.5	(3.8, 15.2)
		Other	28	.	.
	Female	White	451	2.4	(1.0, 3.8)
		Black	20	.	.
		Hispanic	121	9.0	(3.9, 14.1)
		Other	50	.	.

# Results - Diabetes

## REGIONAL DISTRIBUTION

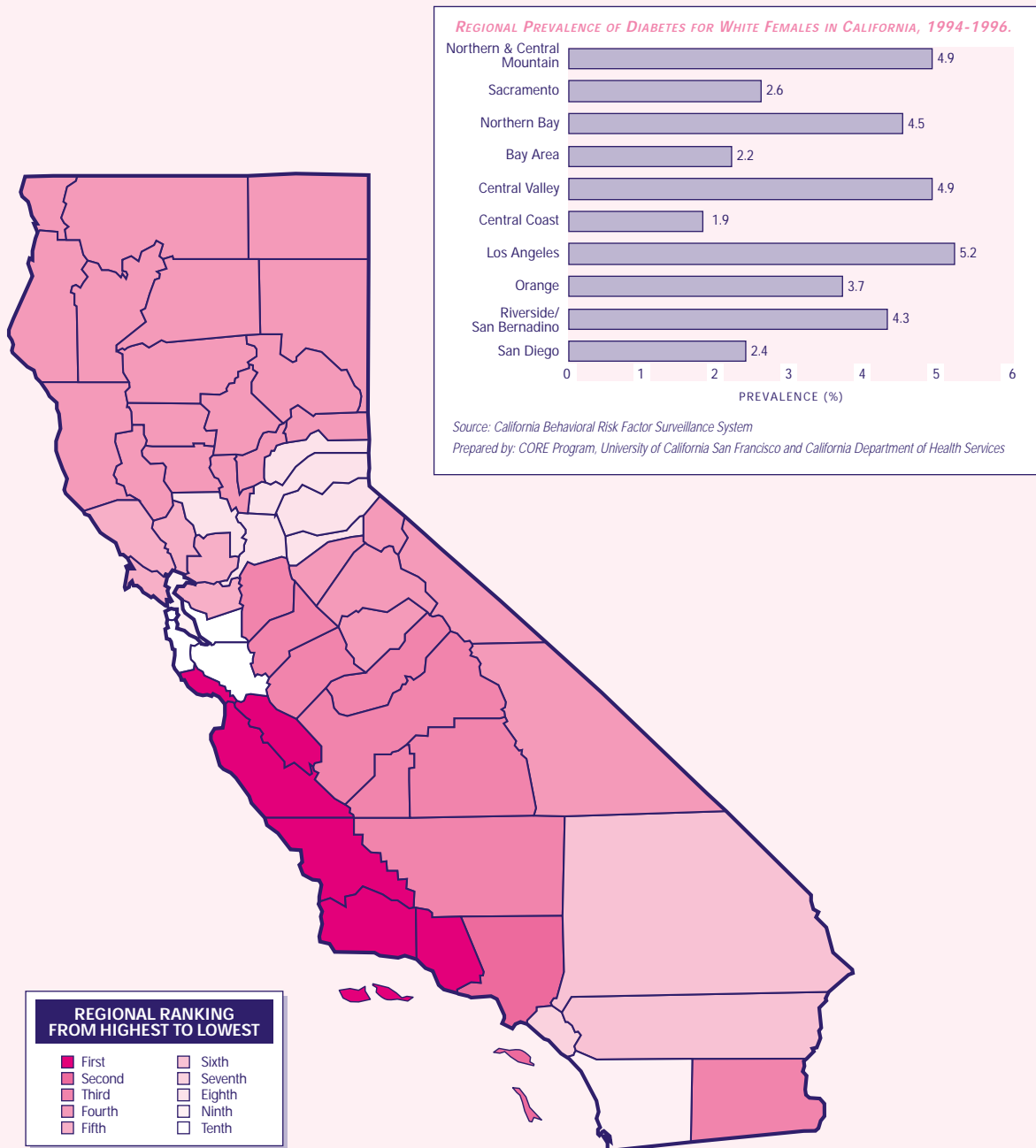
MAP 6: PREVALENCE OF DIABETES FOR WHITE MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Diabetes

## REGIONAL DISTRIBUTION

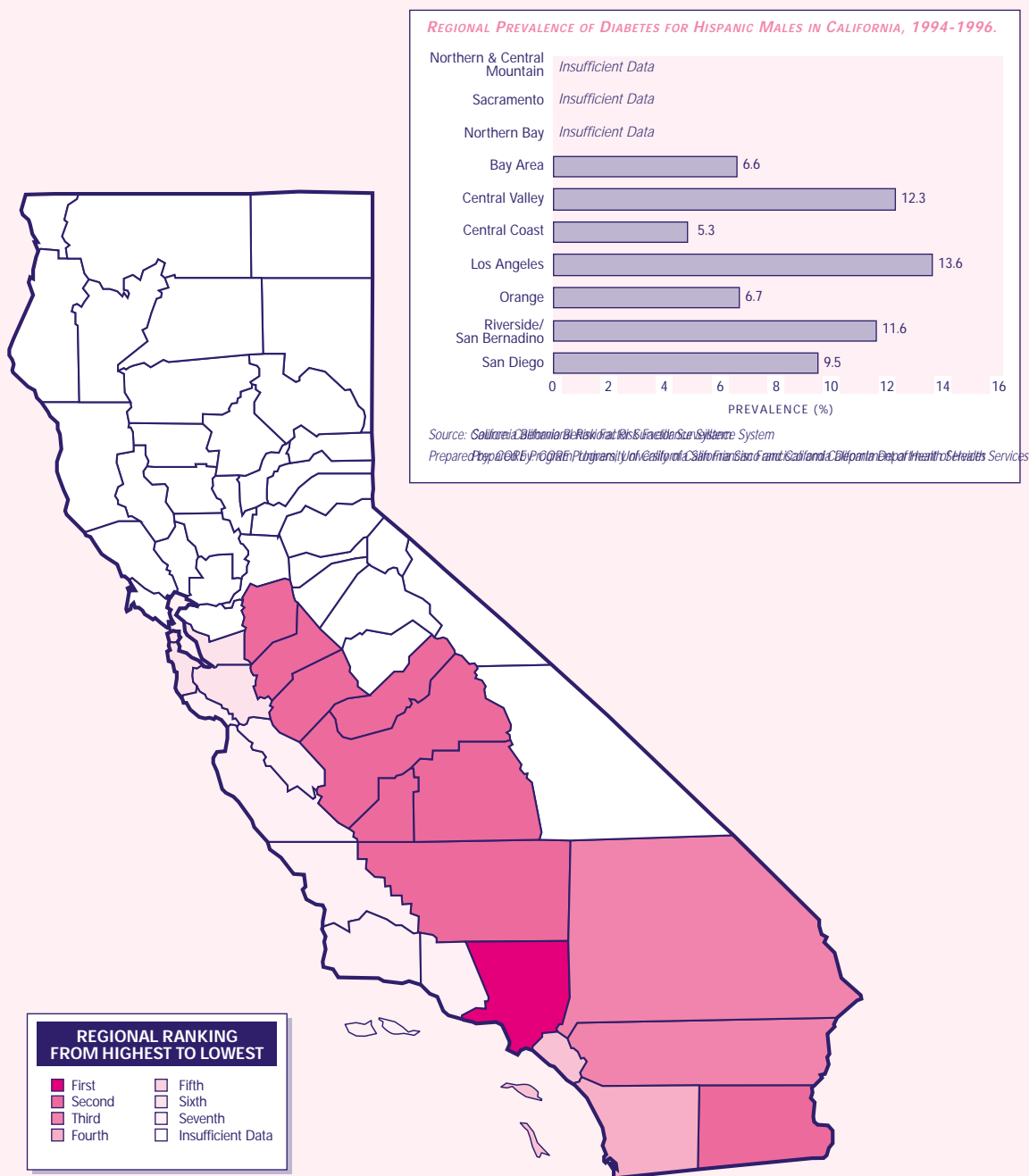
MAP 7: PREVALENCE OF DIABETES FOR WHITE FEMALES BY REGION IN CALIFORNIA, 1996-1996



# Results - Diabetes

## REGIONAL DISTRIBUTION

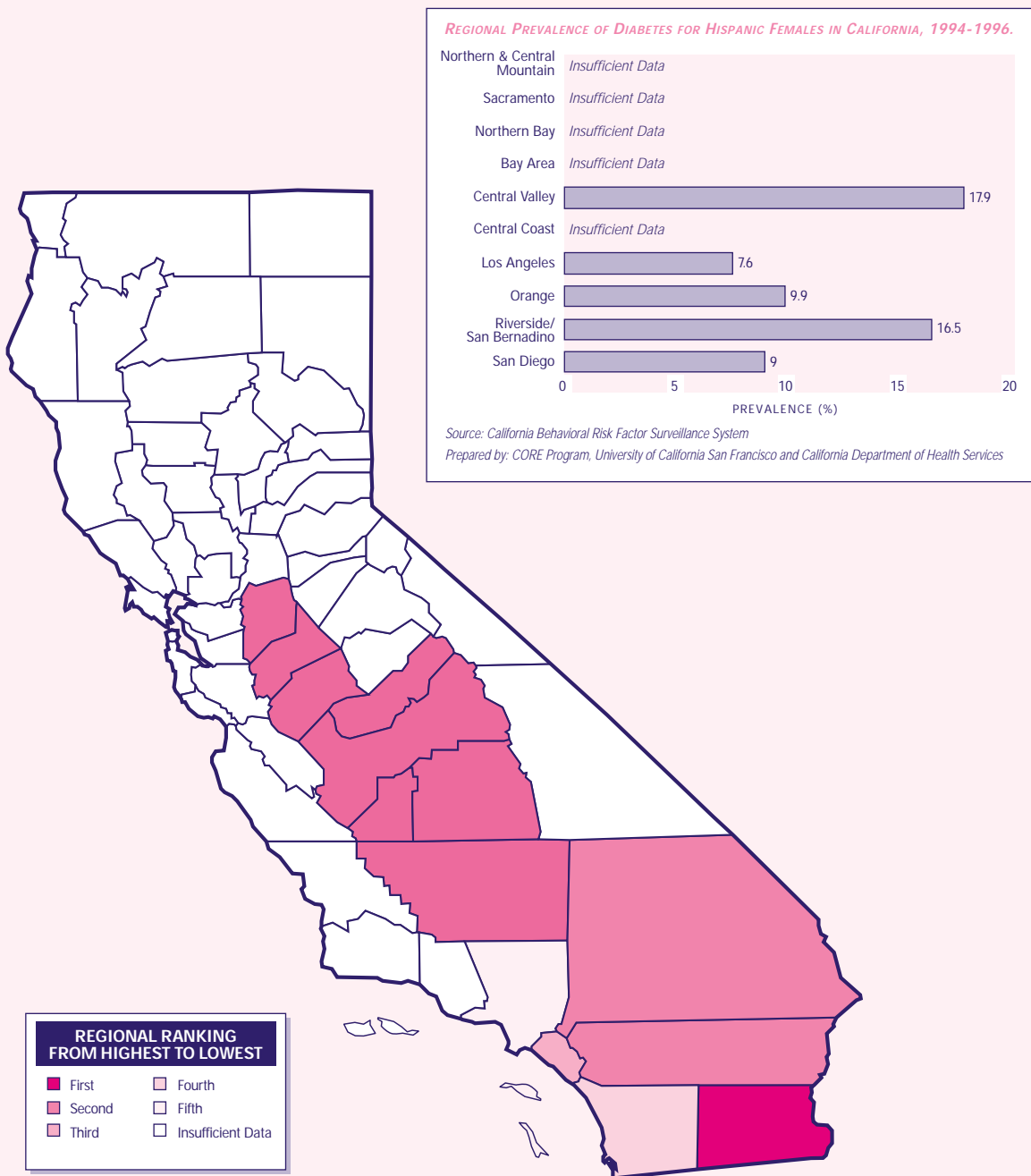
MAP 8 PREVALENCE OF DIABETES FOR HISPANIC MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Diabetes

## REGIONAL DISTRIBUTION

MAP 9: PREVALENCE OF DIABETES FOR HISPANIC FEMALES BY REGION IN CALIFORNIA, 1994-1996



## Results - High Blood Pressure

People with uncontrolled high blood pressure have a much higher risk of developing heart disease and stroke...

Often called the silent killer, high blood pressure is one of the major risk factors for heart disease and the most important risk factor for stroke.<sup>16</sup> People with uncontrolled high blood pressure have three to four times the risk of developing heart disease and as much as seven times the risk of developing stroke as do those with normal blood pressure.<sup>17</sup> It is, however, unfortunate that recent trends from national data such as NHANES indicate a lack of improvement in the proportion of individuals treated and controlled over the past decade, suggesting that there are still important

challenges if we are to adequately combat hypertension.

The good news is that most cases of high blood pressure can be prevented or treated by maintaining a healthy body weight, not smoking, exercising regularly, eating a low-sodium diet, and taking medication regularly when advised by a physician.

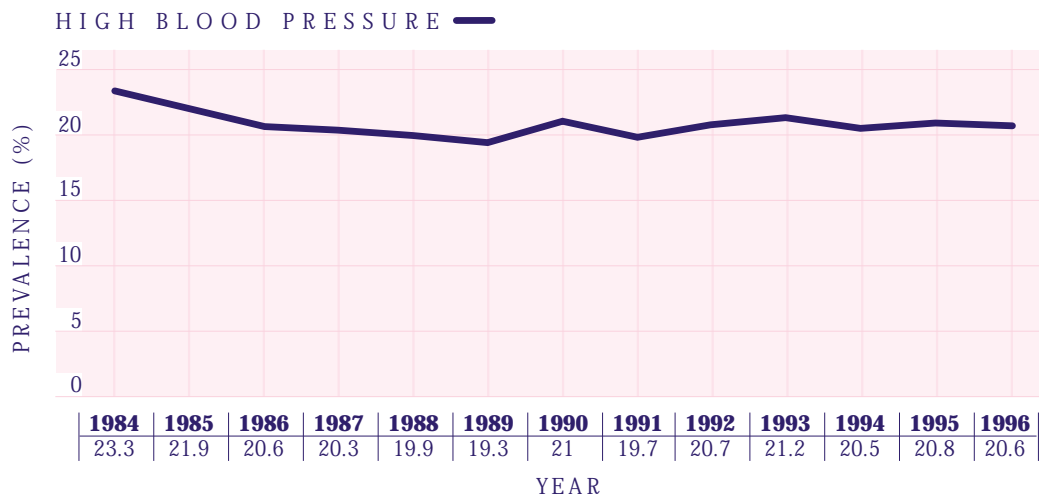
### DEFINITION

Respondents who state they have been told at least once that they have high blood pressure by a doctor, nurse or other health care professional are considered hypertensive.<sup>4</sup>

## RESULTS

### Statewide Prevalence

FIGURE 11: PREVALENCE OF HIGH BLOOD PRESSURE AMONG CALIFORNIA ADULTS, 1984-1996



Trend is not significant,  $p=0.31$ .

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

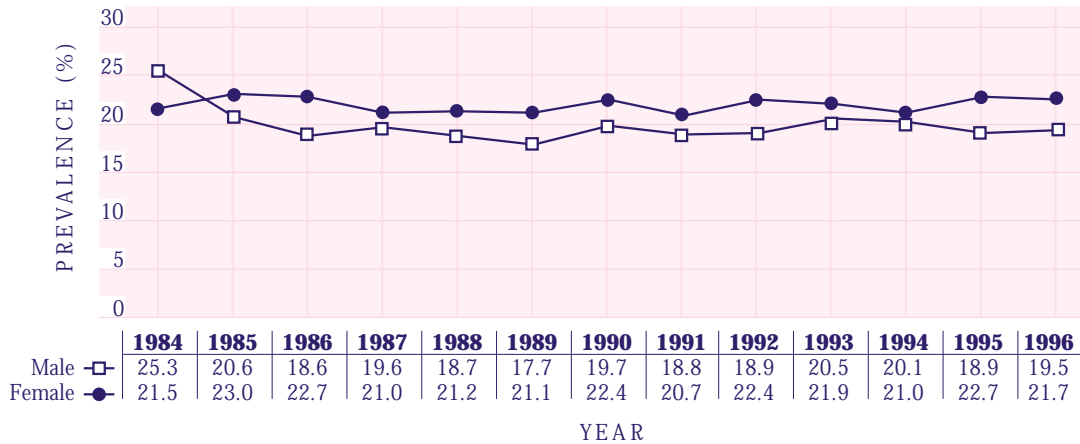
Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

# Results - High Blood Pressure

## STATEWIDE PREVALENCE

**FIGURE 12: PREVALENCE OF HIGH BLOOD PRESSURE AMONG CALIFORNIA ADULTS BY GENDER, 1984-1996**



Trend is not significant for men,  $p=0.11$  or for women,  $p=0.80$ .

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**TABLE 7: PREVALENCE OF HIGH BLOOD PRESSURE AMONG CALIFORNIA ADULTS, 1996**

		SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Overall</b>		3910	20.6	(19.3, 21.9)
<b>Gender</b>	Male	1709	19.5	(17.6, 21.4)
	Female	2201	21.7	(20.0, 23.5)
<b>Male</b>	White	1133	22.8	(20.3, 25.2)
	Black	86	41.5	(31.1, 51.9)
	Hispanic	370	22.1	(17.9, 26.4)
	Other	126	15.6	(9.2, 21.9)
<b>Female</b>	White	1462	23.7	(21.5, 25.9)
	Black	122	35.0	(26.5, 43.5)
	Hispanic	483	25.0	(21.1, 28.8)
	Other	148	21.5	(14.9, 28.2)
<b>Age</b>	18-24	381	6.9	(4.3, 9.4)
	25-34	828	10.8	(8.7, 13.0)
	35-44	888	14.9	(12.6, 17.2)
	45-54	705	25.0	(21.8, 28.2)
	55-64	446	36.5	(32.0, 41.0)
	65+	682	48.1	(44.3, 51.8)
<b>Education Level</b>	Less than or equal to High School Graduate	1547	22.4	(20.3, 24.4)
	Some College	1068	20.7	(18.3, 23.1)
	College Graduate	1284	19.0	(16.8, 21.1)



# Results - High Blood Pressure

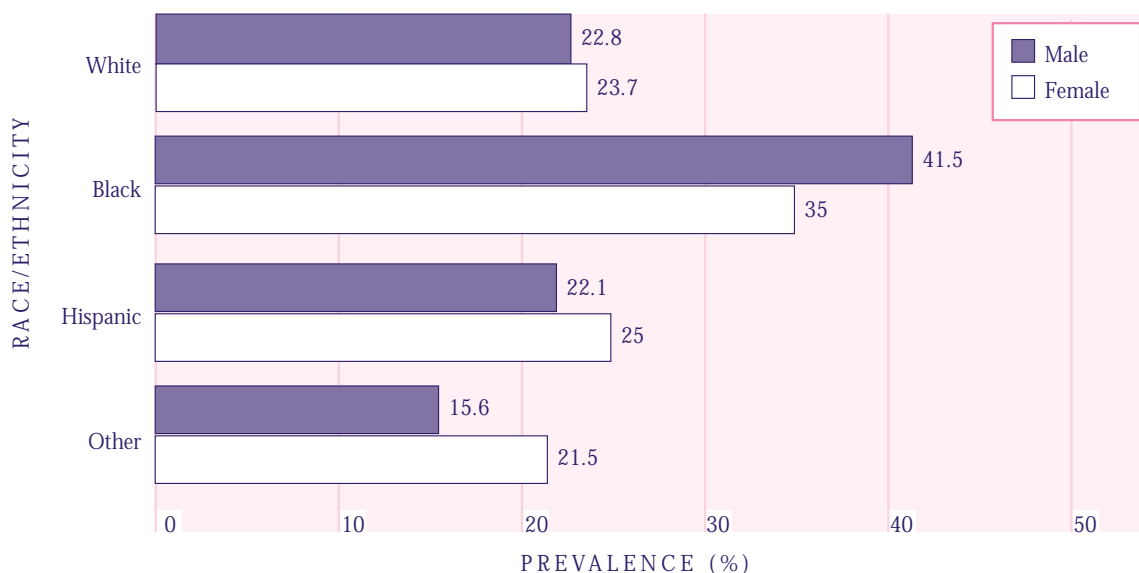
## STATEWIDE PREVALENCE

Figure 11 displays the trend for the percent of California adults who report ever having been told they have high blood pressure by a doctor, nurse or other health care professional. During the 13 years, from 1984 until 1996, the prevalence of high blood pressure among California adults declined modestly (2.7%), but not significantly, from a high of 23.3 percent in 1984 to 20.6 percent in 1996 (figure 11). Figure 12 shows the prevalence of high blood pressure by gender from 1984-1996. A trend analysis showed no significant decline in high blood pressure for either men ( $p=0.11$ ) or women ( $p=0.8$ ) from 1984 to 1996. Even though women tend to have a

higher prevalence of high blood pressure than men, the prevalence is not significantly different between genders (table 7).

The prevalence of high blood pressure among California adults by race and gender is shown in Figure 13. There are differences in hypertension by race/ethnicity. Black men have a significantly higher prevalence of high blood pressure (41.5%) compared to white (22.8%), Hispanic (22.1%) and other (15.6%) men (table 7). Black women have a significantly higher prevalence of high blood pressure (35%) compared to white women (23.7%) (table 7).

**FIGURE 13: PREVALENCE OF HIGH BLOOD PRESSURE AMONG CALIFORNIA ADULTS BY RACE AND GENDER, 1996**



Data age-adjusted to 1990 California population

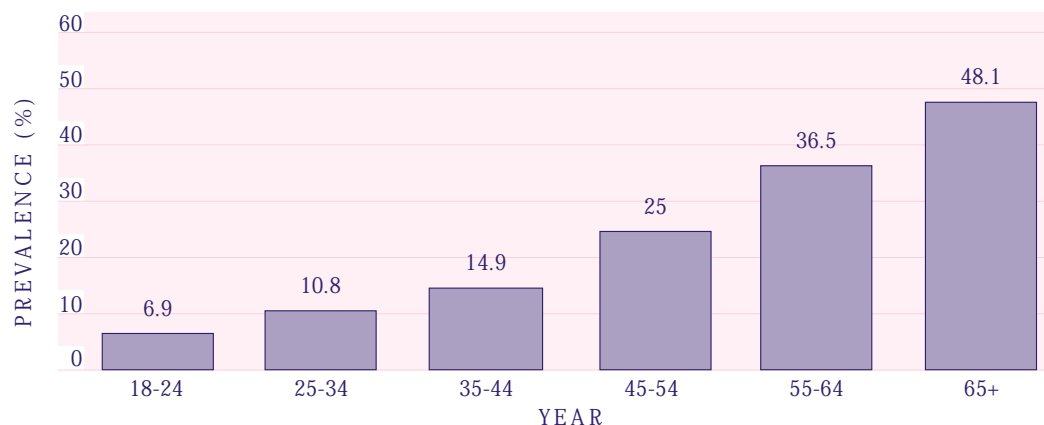
Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

# Results - High Blood Pressure

## STATEWIDE PREVALENCE

**FIGURE 14: PREVALENCE OF HIGH BLOOD PRESSURE AMONG CALIFORNIA ADULTS BY AGE GROUP, 1996**

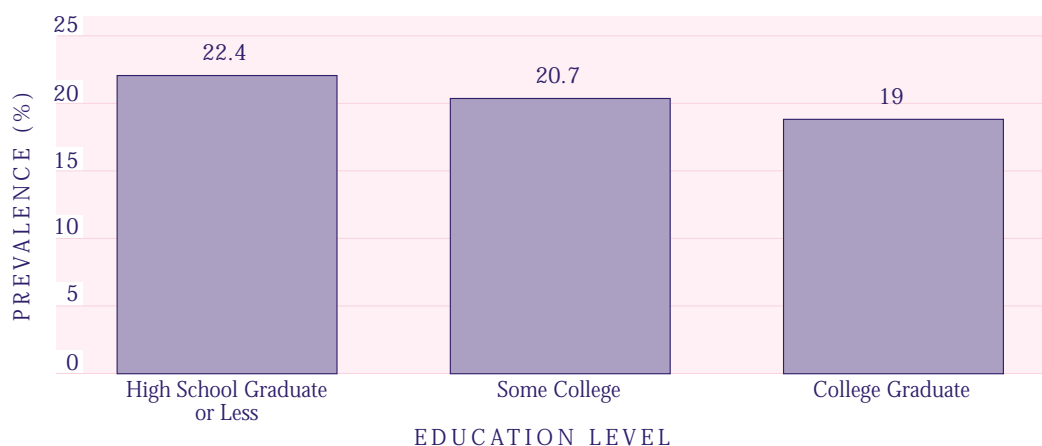


Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**FIGURE 15: PREVALENCE OF HIGH BLOOD PRESSURE AMONG CALIFORNIA ADULTS BY EDUCATION LEVEL, 1996**



Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

Figures 14 and 15 show the prevalence of high blood pressure by age group and education level, respectively. The prevalence of high blood pressure increases dramatically with age, rising from less than seven percent of 18-24

year olds to over 48 percent among those over 65 years (figure 14, table 7). There are no significant differences in high blood pressure among the three education categories presented (figure 15, table 7).

# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

Table 8 shows the prevalence and 95% confidence intervals of high blood pressure for ten regions in California by gender and race/ethnicity. Only for the Bay Area (excluding black men) and Los Angeles regions do we have adequate sample size to calculate prevalence for the eight gender and race/ethnic group combinations. For the remaining regions we are able to present the prevalence of high blood pressure for white and Hispanic men and women. Maps 10-13 show the regional prevalence and ranking of high blood pressure for white and Hispanic men and women. For white men, the Central Valley has the highest prevalence of high blood pressure (26.2%), however, there are no significant differences between the regions (map 10, table 8). The

prevalence of high blood pressure for Hispanic men is significantly higher in the Bay Area (33.3%) compared to the San Diego region (14.8%) (map 11, table 8). The Central Valley has the highest prevalence of high blood pressure among white women, however, there are no significant differences between regions (map 12, table 8). For Hispanic women, the Northern Bay Area (14.2%) has a significantly lower prevalence of high blood pressure compared to the San Bernardino/Riverside region (35%) (map 13, table 8).

For more information about high blood pressure please contact the CORE Program Chronic Disease Control Branch, California Department of Health Services at (916) 324-1329.

# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

**TABLE 8: PREVALENCE OF HIGH BLOOD PRESSURE FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Northern &amp; Eastern Mountain</b>	Male	White	224	25.0	(19.3, 30.7)
		Black	3	.	.
		Hispanic	19	.	.
		Other	8	.	.
	Female	White	250	23.2	(18.0, 28.5)
		Black	2	.	.
		Hispanic	19	.	.
		Other	9	.	.
<b>Sacramento Area</b>	Male	White	237	22.2	(16.9, 27.5)
		Black	23	.	.
		Hispanic	32	.	.
		Other	20	.	.
	Female	White	292	26.1	(21.1, 31.1)
		Black	19	.	.
		Hispanic	56	33.6	(21.2, 31.1)
		Other	24	.	.
<b>Northern Bay Area</b>	Male	White	313	21.9	(17.3, 26.5)
		Black	18	.	.
		Hispanic	44	.	.
		Other	35	.	.
	Female	White	358	21.0	(16.8, 25.3)
		Black	31	.	.
		Hispanic	50	14.2	(4.5, 23.9)
		Other	36	.	.
<b>Bay Area</b>	Male	White	472	22.7	(18.9, 26.5)
		Black	39	.	.
		Hispanic	123	33.3	(25.0, 41.6)
		Other	99	14.4	(7.5, 21.3)
	Female	White	519	19.1	(15.7, 22.5)
		Black	72	46.4	(34.9, 57.9)
		Hispanic	130	23.2	(15.9, 30.4)
		Other	95	15.9	(8.5, 23.2)
<b>Central Valley</b>	Male	White	291	26.2	(21.1, 31.3)
		Black	10	.	.
		Hispanic	150	21.3	(14.8, 27.9)
		Other	19	.	.
	Female	White	455	26.4	(21.4, 31.5)
		Black	24	.	.
		Hispanic	194	29.9	(11.7, 48.1)
		Other	40	.	.

# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

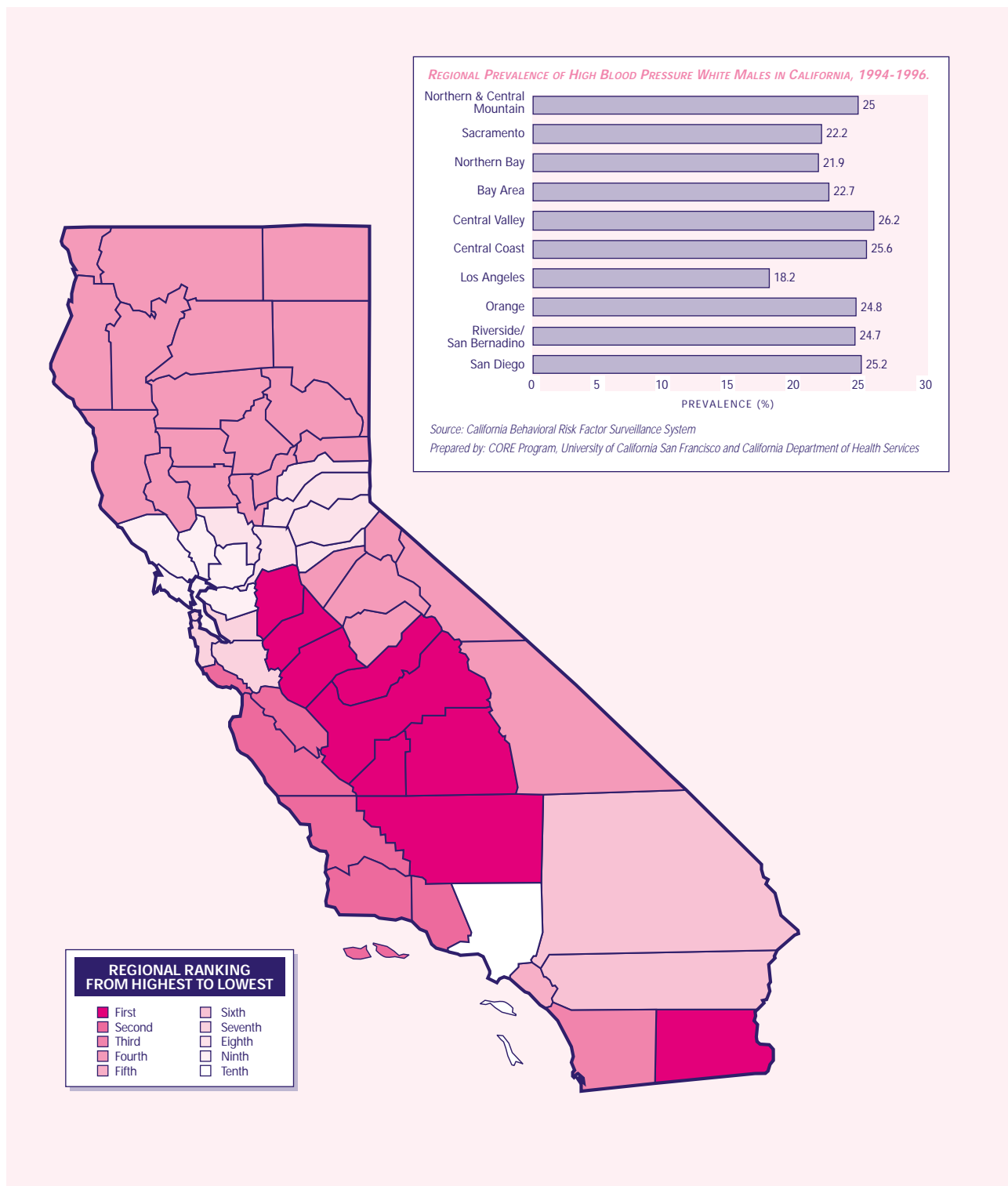
**TABLE 8: PREVALENCE OF HIGH BLOOD PRESSURE FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Central Coast</b>	Male	White	251	25.6	(20.2, 31.0)
		Black	8	.	.
		Hispanic	71	19.4	(10.2, 28.6)
		Other	12	.	.
	Female	White	323	21.7	(17.2, 26.2)
		Black	4	.	.
		Hispanic	87	20.8	(12.3, 29.3)
		Other	14	.	.
<b>Los Angeles</b>	Male	White	635	18.2	(15.2, 21.2)
		Black	122	33.5	(25.2, 41.9)
		Hispanic	423	21.5	(17.6, 25.4)
		Other	119	22.6	(15.1, 30.1)
	Female	White	768	24.0	(21.0, 27.0)
		Black	186	35.0	(28.1, 41.8)
		Hispanic	572	25.1	(21.5, 28.6)
		Other	135	17.2	(10.8, 23.6)
<b>Orange</b>	Male	White	281	24.8	(19.7, 29.8)
		Black	6	.	.
		Hispanic	87	21.7	(13.0, 30.3)
		Other	34	.	.
	Female	White	339	20.0	(15.8, 24.3)
		Black	6	.	.
		Hispanic	86	21.3	(12.7, 30.0)
		Other	34	.	.
<b>San Bernardino &amp; Riverside</b>	Male	White	353	24.7	(20.2, 29.2)
		Black	26	.	.
		Hispanic	118	19.2	(12.1, 26.3)
		Other	22	.	.
	Female	White	429	24.0	(20.0, 28.0)
		Black	29	.	.
		Hispanic	142	35.0	(27.1, 42.8)
		Other	21	.	.
<b>San Diego</b>	Male	White	336	25.2	(20.6, 29.8)
		Black	15	.	.
		Hispanic	101	14.8	(7.9, 21.7)
		Other	28	.	.
	Female	White	451	19.9	(16.3, 23.6)
		Black	20	.	.
		Hispanic	119	21.6	(14.2, 29.0)
		Other	49	48.8	(34.8, 62.8)

# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

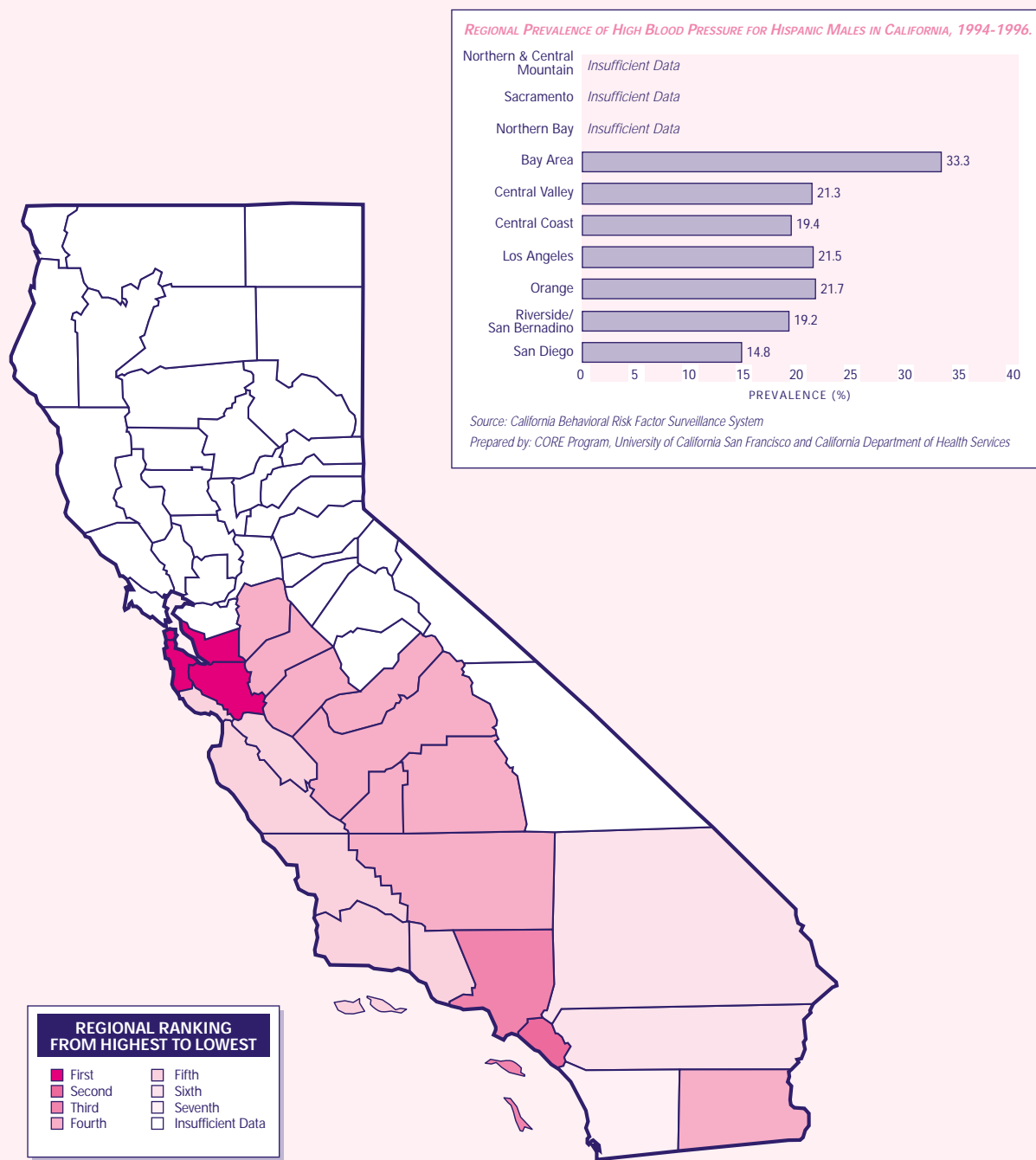
MAP 10: PREVALENCE OF HIGH BLOOD PRESSURE FOR WHITE MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

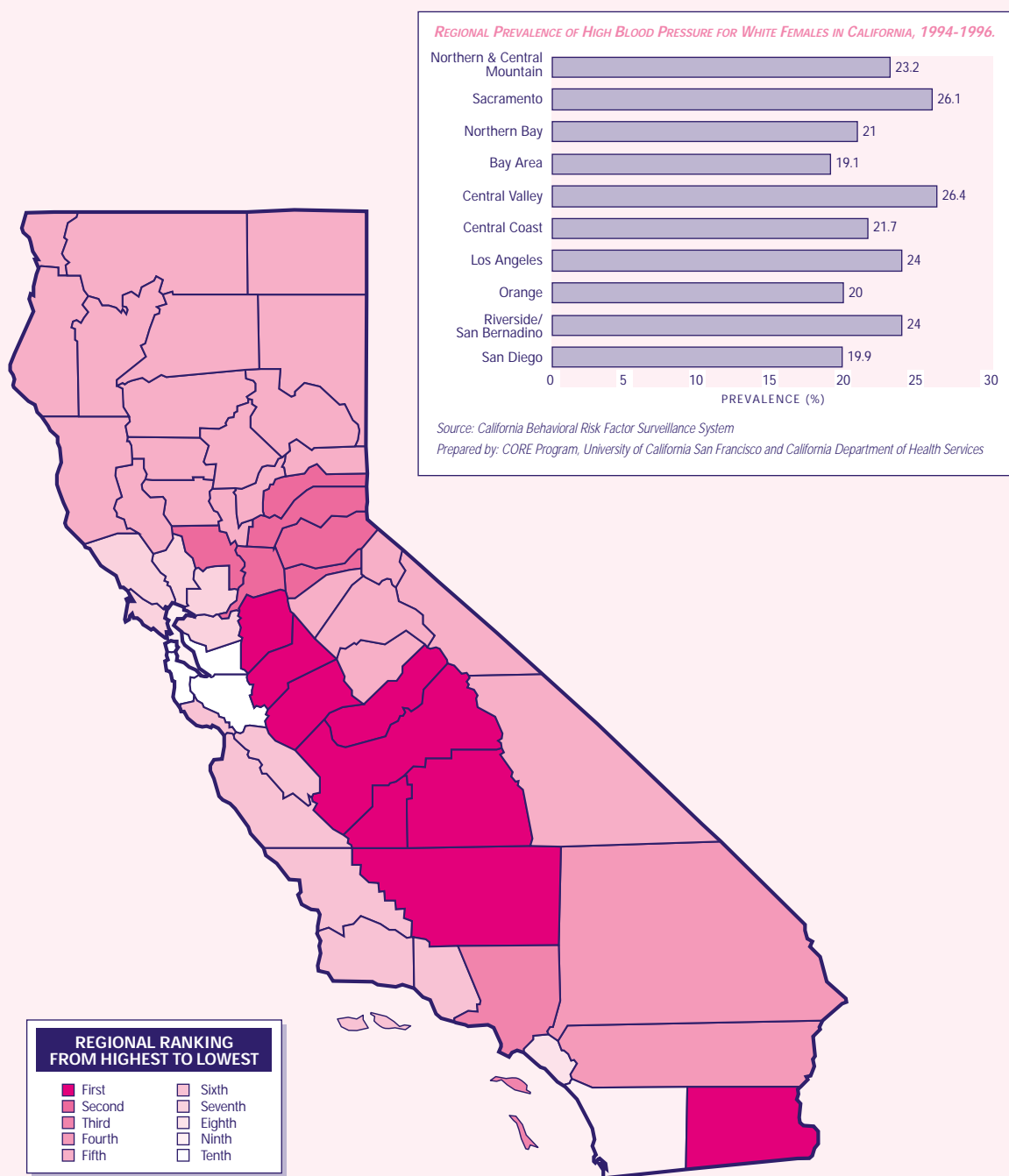
MAP 11: PREVALENCE OF HIGH BLOOD PRESSURE FOR HISPANIC MALES BY REGION IN CALIFORNIA, 1994-1996.



# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

MAP 12: PREVALENCE OF HIGH BLOOD PRESSURE FOR WHITE FEMALES BY REGION IN CALIFORNIA, 1994-1996.

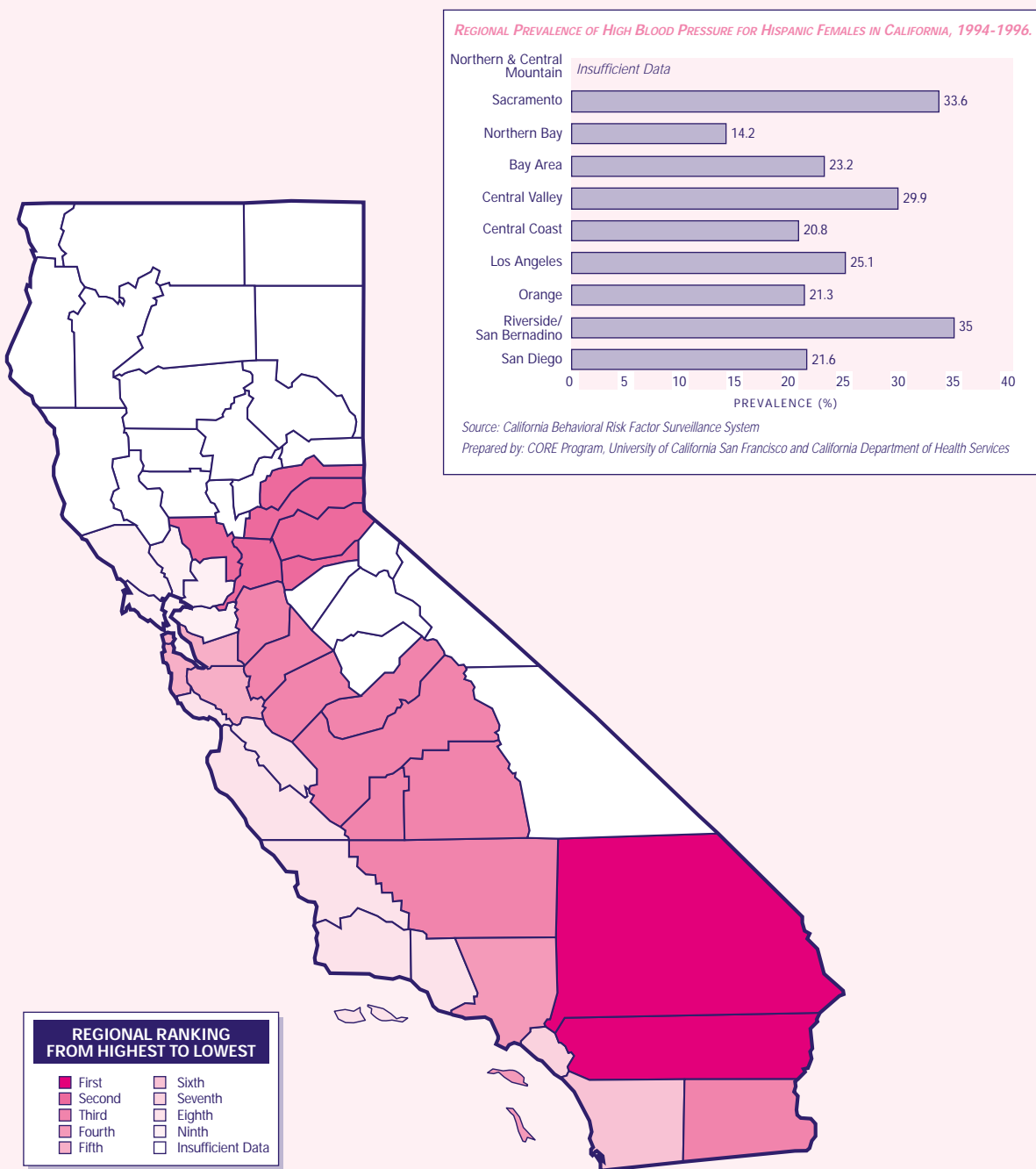




# Results - High Blood Pressure

## REGIONAL DISTRIBUTION

MAP 13: PREVALENCE OF HIGH BLOOD PRESSURE FOR HISPANIC FEMALES BY REGION IN CALIFORNIA, 1994-1996.



## Results - Obesity/Overweight

Overweight, based on body mass index [(weight in kg/(height in m)<sup>2</sup>], is one of the most prevalent public health problems in California.<sup>4</sup> It is associated with an increased risk for high blood pressure, high blood cholesterol, and diabetes, and is an independent risk factor for heart disease.<sup>18-20</sup> Encouraging are the studies that have found a reduction in body weight in overweight individuals can lower blood pressure and improve blood cholesterol levels significantly.<sup>19</sup>

Many studies have examined the relationship between CVD and obesity.<sup>18, 21-23</sup> The Nurses' Health Study, an eight-year evaluation of 115,886 healthy women ages 30-55, examined the incidence of nonfatal and fatal coronary heart disease in relation to obesity and concluded that obesity is a strong risk factor for heart disease.<sup>22</sup> The researchers found that being overweight is associated with approximately 40 percent of all heart disease in U.S. women, and gaining 20 extra pounds during adulthood doubles the risk. Supportive are data from the Framingham Heart Study which found that weight gain during adulthood increased the risk of CVD in both sexes that could not be attributed to either initial weight or risk factors related to weight gain.<sup>23</sup>

### DEFINITION

The measure of overweight reported here is based on the body mass index

(BMI), which is calculated from the height and weight of the individual. Overweight is defined by the sex-specific 85th percentile of BMI for U.S. adults 20 to 29 years of age, as determined by the Second National Health and Nutrition Survey conducted by the National Center for Health Statistics between 1976 and 1980. A BMI of 27.8 or higher for men and 27.3 or higher for women is considered overweight.<sup>4</sup>

The first Federal guidelines on the identification, evaluation and treatment of overweight and obesity in adults were released June 17, 1998 by the National Heart, Lung, and Blood Institute (NHLBI), in cooperation with the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDKD). The panel that developed the guidelines identified overweight as a BMI of 25 to 29.9 and obesity as a BMI of 30 and above. Since the guidelines have not yet been fully implemented, and in order to keep the consistency with previous analysis of BRFSS data, we have chosen to use the definition for overweight routinely used. Keep in mind, however, that by doing so our estimates of the prevalence of overweight are more conservative than if we had used the new definition by NHLBI and NIDDKD. In other words, the prevalence of overweight and obesity may very well be greater than reported here for California and the regions.

*Overweight is associated with an increased risk for high blood pressure, high blood cholesterol, and diabetes, and is an independent risk factor for heart disease.*

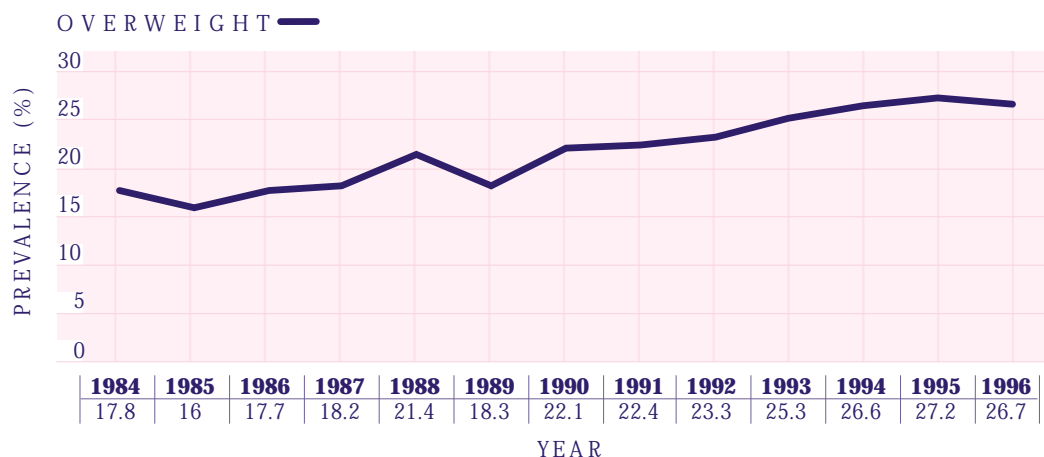
# Results - Obesity/Overweight

## STATEWIDE PREVALENCE

### RESULTS

#### Statewide Prevalence

**FIGURE 16: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS, 1984-1996**



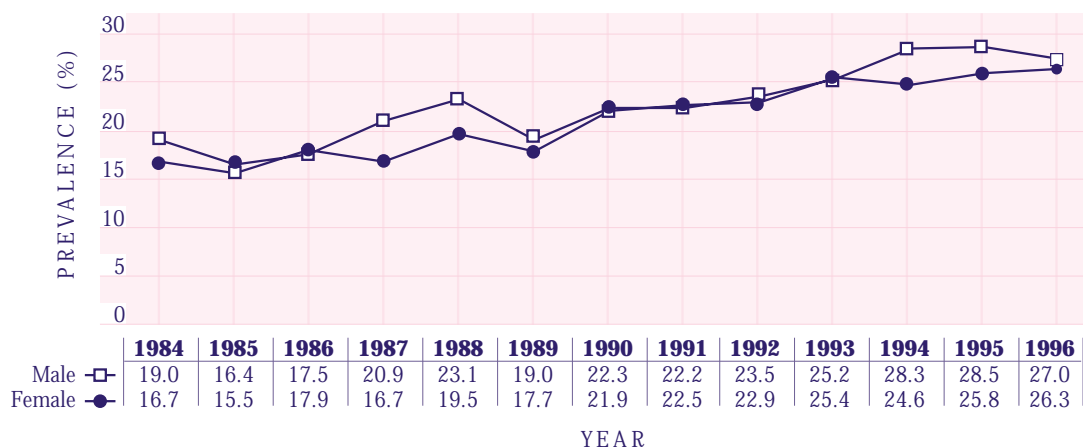
Trend is significant,  $p < 0.0001$

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**FIGURE 17: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS BY GENDER, 1984-1996**



Trend is significant for men,  $p < 0.01$  and for women,  $p < 0.01$ .

Weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

# Results - Obesity/Overweight

## STATEWIDE PREVALENCE

**TABLE 9: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS, 1996**

		SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Overall</b>		3805	26.7	(25.2, 28.1)
<b>Gender</b>	Male	1696	27.0	(24.9, 29.1)
	Female	2109	26.3	(24.4, 28.2)
<b>Male</b>	White	1130	25.1	(22.6, 27.7)
	Black	85	37.0	(26.7, 47.2)
	Hispanic	359	34.6	(29.7, 39.5)
	Other	127	15.9	(9.5, 22.2)
<b>Female</b>	White	1422	24.2	(22.0, 26.4)
	Black	116	40.2	(31.3, 49.2)
	Hispanic	443	42.7	(38.1, 47.3)
	Other	142	16.3	(10.2, 22.4)
<b>Age</b>	18-24	371	16.6	(12.8, 20.3)
	25-34	803	23.0	(20.1, 26.0))
	35-44	870	28.7	(25.7, 31.7)
	45-54	678	32.9	(29.3, 36.4)
	55-64	427	28.4	(33.8, 43.0)
	65+	675	25.2	(21.9, 28.4)
<b>Education Level</b>	Less than or equal to High School Graduate	1479	31.4	(29.0, 33.7)
	Some College	1051	25.9	(23.3, 28.6)
	College Graduate	1267	20.2	(18.0, 22.4)

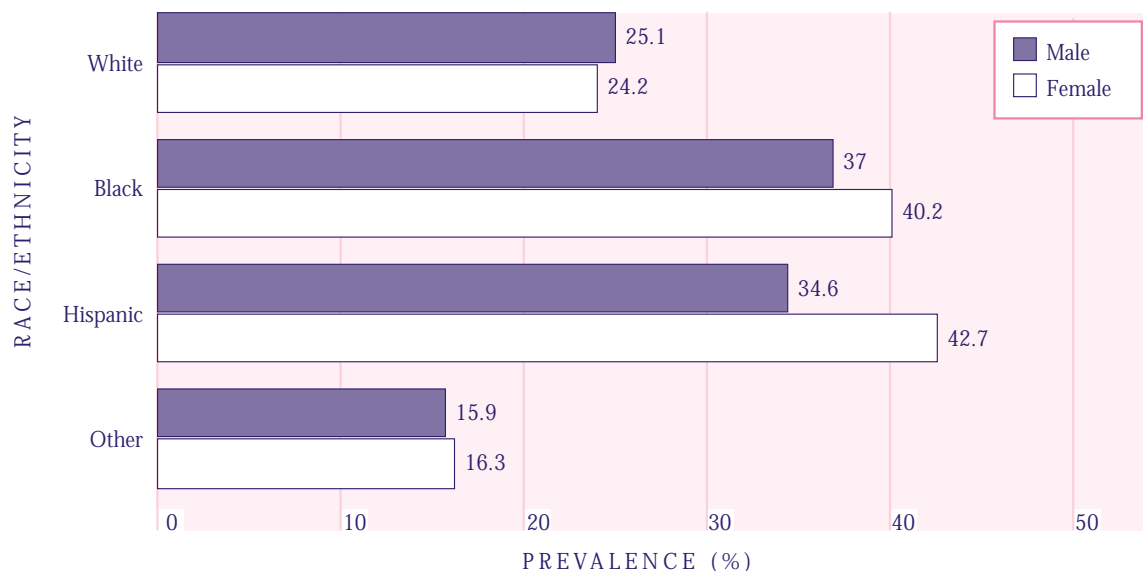
Results from the California BRFSS survey indicate that more Californians are becoming overweight each year (figure 16). In 1996, more than one in four California adults (26.7%) were overweight; a 50 percent change in prevalence since 1984. Figure 17 shows the prevalence and trend of

overweight among California adults by gender from 1984 through 1996. The prevalence has increased significantly for men ( $p<0.01$ ) and women ( $p<0.01$ ) during the past 13 years. The prevalence of overweight increased 41 percent for women and 60 percent for men since 1984.

# Results - Obesity/Overweight

## STATEWIDE PREVALENCE

FIGURE 18: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS BY RACE AND GENDER, 1996



Data age-adjusted to 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

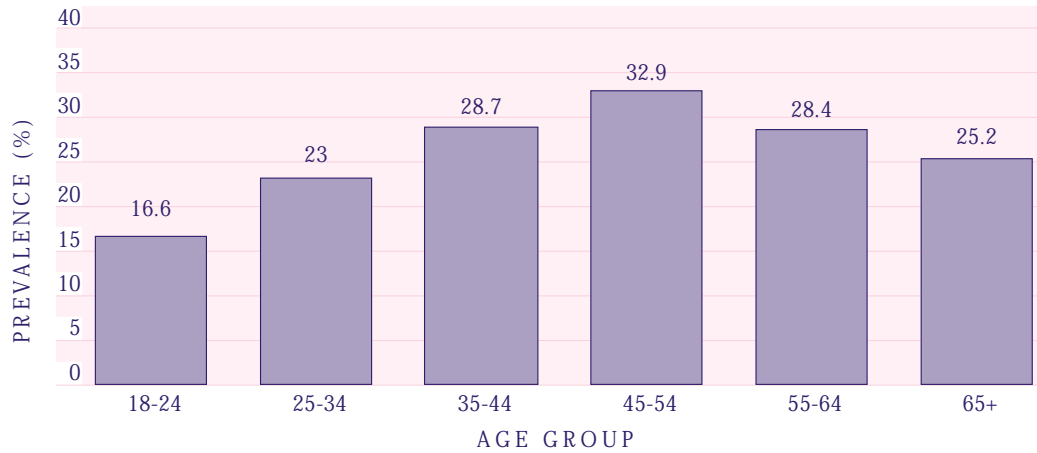
Looking at the prevalence of overweight by race and gender for 1996, Hispanic women were the most likely to be overweight (42.7%), followed by black women (40.2%), and black men (37%) (figure 18). White men have a significantly lower prevalence of overweight (25.1 %)

compared to black men (37%). White women have significantly lower prevalence of overweight (24.2%) compared to Hispanic (42.7%) and black (40.2%) women (table 9). There were no significant differences in overweight between the genders of the same race/ethnic group (table 9).

# Results - Obesity/Overweight

## STATEWIDE PREVALENCE

**FIGURE 19: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS BY AGE GROUP, 1996**

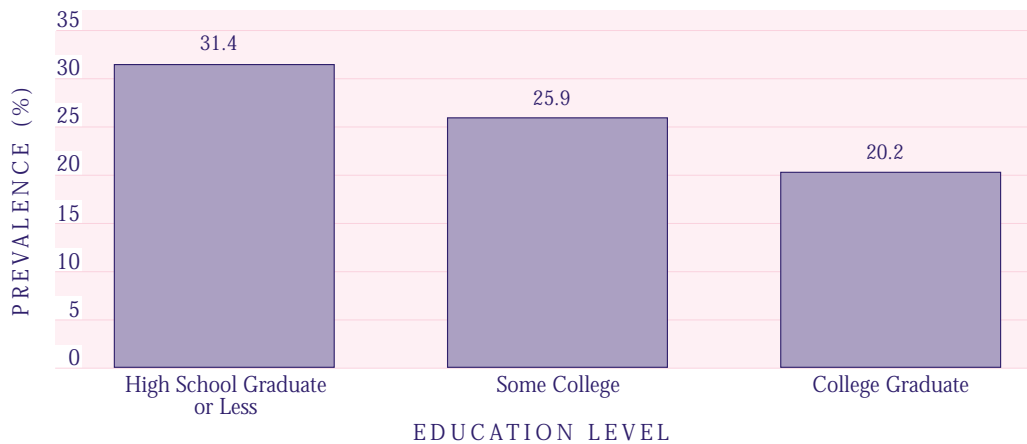


Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**FIGURE 20: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS BY EDUCATION LEVEL, 1996**



Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

The prevalence of overweight increases dramatically with increasing age, from less than 17 percent of 18 to 24 year olds to nearly 33 percent for those 45 to 54 years of age ( $p < 0.05$ ) (table 9). The prevalence of overweight significantly decreases with increasing

education (figure 20, table 9). Persons with a high school graduation or less education (31.4%) are 1.6 times more likely to be overweight compared to persons who graduated from college (20.2%).

# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

Table 10 shows the prevalence and 95% confidence intervals of overweight for ten regions in California by gender and race/ethnicity. Only for the Bay Area and Los Angeles regions do we have adequate sample size to calculate prevalences for all gender and race/ethnic group combinations. For the remaining regions, we display the prevalence of overweight for white and Hispanic men and women.

Except for San Diego, the prevalence of overweight did not differ significantly between white men and women within regions (table 10). Within the San Diego region, white men have a significantly higher prevalence of overweight (28.1%) compared to white women (18.9%). In the San Bernardino/Riverside region, the prevalence of overweight differed significantly between Hispanic men and women, 46.6 percent and 29.6 percent, respectively.

Within the Los Angeles region, Hispanic men have a significantly higher prevalence of overweight (37.3%) compared to white (24.4%) and other (19.3%) men (table 10). For women, Hispanics (37.9%) and blacks (44.6%) have a significantly higher prevalence of overweight compared to white (19.7%) and other (12.5%)

women.

Maps 14-17 show the prevalence and regional ranking of overweight for white and Hispanic men and women by region. Among white men, those from Northern Bay Area have a significantly higher prevalence of overweight, 29.8 percent, compared to the Central Coast, 19.7 percent (map 14). Among Hispanic men, there are no significant differences between regions (map 15). The greatest concentration of overweight white women is in the Northern and Central Mountain (31.7%) and the Central Valley (31.5%) regions; significantly greater than for the Central Coast (19.5%), Los Angeles (19.7%), and San Diego (18.9%) regions (map 16, table 10). Even though map 17 shows the highest prevalence of overweight for Hispanic women in the Bay Area (44.9%), there are no significant differences in the prevalence of overweight between regions for Hispanic women (table 10).

For more information on overweight and obesity in California, other than what is contained in this report, please contact California Project LEAN, Chronic Disease Control Branch, California Department of Health Services at (916) 323-4742.

# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

**TABLE 10: PREVALENCE OF OVERWEIGHT FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Northern &amp; Central Mountain</b>	Male	White	226	29.1	(23.2, 35.0)
		Black	3	.	.
		Hispanic	18	.	.
		Other	8	.	.
	Female	White	242	31.7	(25.8, 37.6)
		Black	2	.	.
		Hispanic	19	.	.
		Other	9	.	.
<b>Sacramento Area</b>	Male	White	235	28.9	(23.1, 34.7)
		Black	23	.	.
		Hispanic	33	.	.
		Other	22	.	.
	Female	White	284	25.5	(20.4, 30.5)
		Black	19	.	.
		Hispanic	53	41.2	(27.9, 54.4)
		Other	22	.	.
<b>Northern Bay Area</b>	Male	White	313	29.8	(24.8, 34.9)
		Black	18	.	.
		Hispanic	42	.	.
		Other	35	.	.
	Female	White	358	25.1	(20.7, 29.6)
		Black	31	.	.
		Hispanic	44	.	.
		Other	36	.	.
<b>Bay Area</b>	Male	White	473	22.4	(18.6, 26.1)
		Black	40	.	.
		Hispanic	122	43.5	(34.7, 52.30)
		Other	98	9.0	(3.3, 14.6)
	Female	White	503	22.9	(19.2, 26.6)
		Black	67	42.2	(30.4, 54.1)
		Hispanic	124	44.9	(36.1, 53.6)
		Other	95	4.7	(0.5, 9.0)
<b>Central Valley</b>	Male	White	290	28.4	(23.2, 33.6)
		Black	10	.	.
		Hispanic	145	44.5	(36.4, 52.5)
		Other	19	.	.
	Female	White	441	31.5	(27.2, 35.9)
		Black	24	.	.
		Hispanic	173	41.8	(34.5, 49.2)
		Other	40	.	.



# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

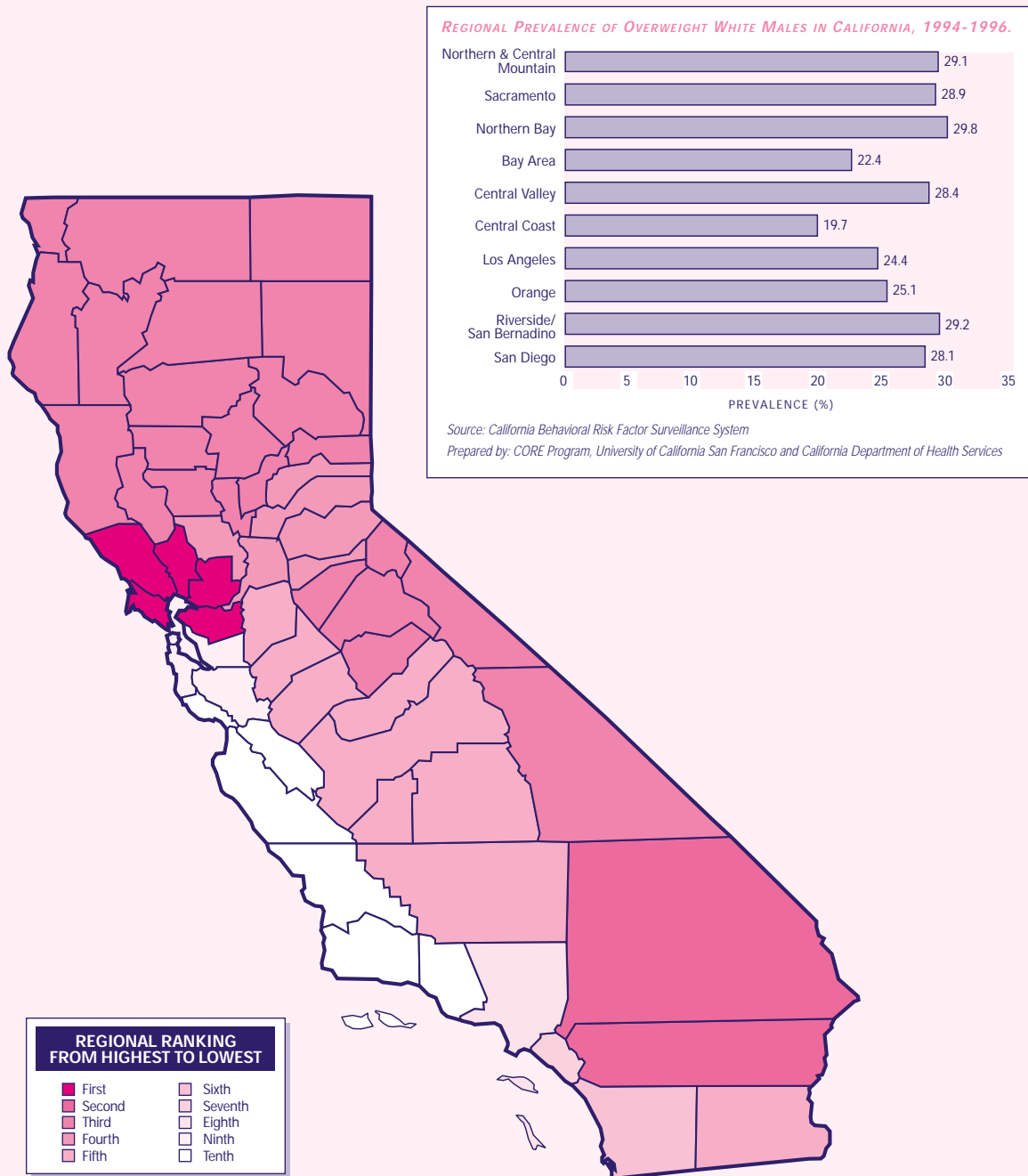
**TABLE 10: PREVALENCE OF OVERWEIGHT FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Central Coast</b>	Male	White	251	19.7	(14.8, 24.7)
		Black	8	.	.
		Hispanic	65	37.3	(25.6, 49.1)
		Other	12	.	.
	Female	White	312	19.5	(15.1, 23.8)
		Black	4	.	.
		Hispanic	79	40.2	(29.4, 51.1)
		Other	14	.	.
<b>Los Angeles</b>	Male	White	633	24.4	(21.1, 27.8)
		Black	119	36.1	(27.5, 44.8)
		Hispanic	414	37.3	(32.6, 41.9)
		Other	121	19.3	(12.2, 26.3)
	Female	White	745	19.7	(16.8, 22.5)
		Black	177	44.6	(37.3, 51.9)
		Hispanic	512	37.9	(33.7, 42.1)
		Other	130	12.5	(6.8, 18.1)
<b>Orange</b>	Male	White	282	25.1	(20.1, 30.2)
		Black	6	.	.
		Hispanic	89	35.9	(26.0, 45.9)
		Other	34	.	.
	Female	White	330	21.2	(16.8, 25.6)
		Black	5	.	.
		Hispanic	79	44.0	(33.1, 54.9)
		Other	34	.	.
<b>San Bernardino &amp; Riverside</b>	Male	White	352	29.2	(24.5, 34.0)
		Black	26	.	.
		Hispanic	117	46.6	(37.6, 55.7)
		Other	21	.	.
	Female	White	420	25.7	(21.5, 29.9)
		Black	29	.	.
		Hispanic	135	29.6	(21.9, 37.3)
		Other	19	.	.
<b>San Diego</b>	Male	White	333	28.1	(23.3, 32.9)
		Black	15	.	.
		Hispanic	95	40.4	(30.5, 50.2)
		Other	28	.	.
	Female	White	441	18.9	(15.2, 22.5)
		Black	17	.	.
		Hispanic	109	34.3	(25.4, 43.2)
		Other	50	15.1	(5.2, 25.1)

# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

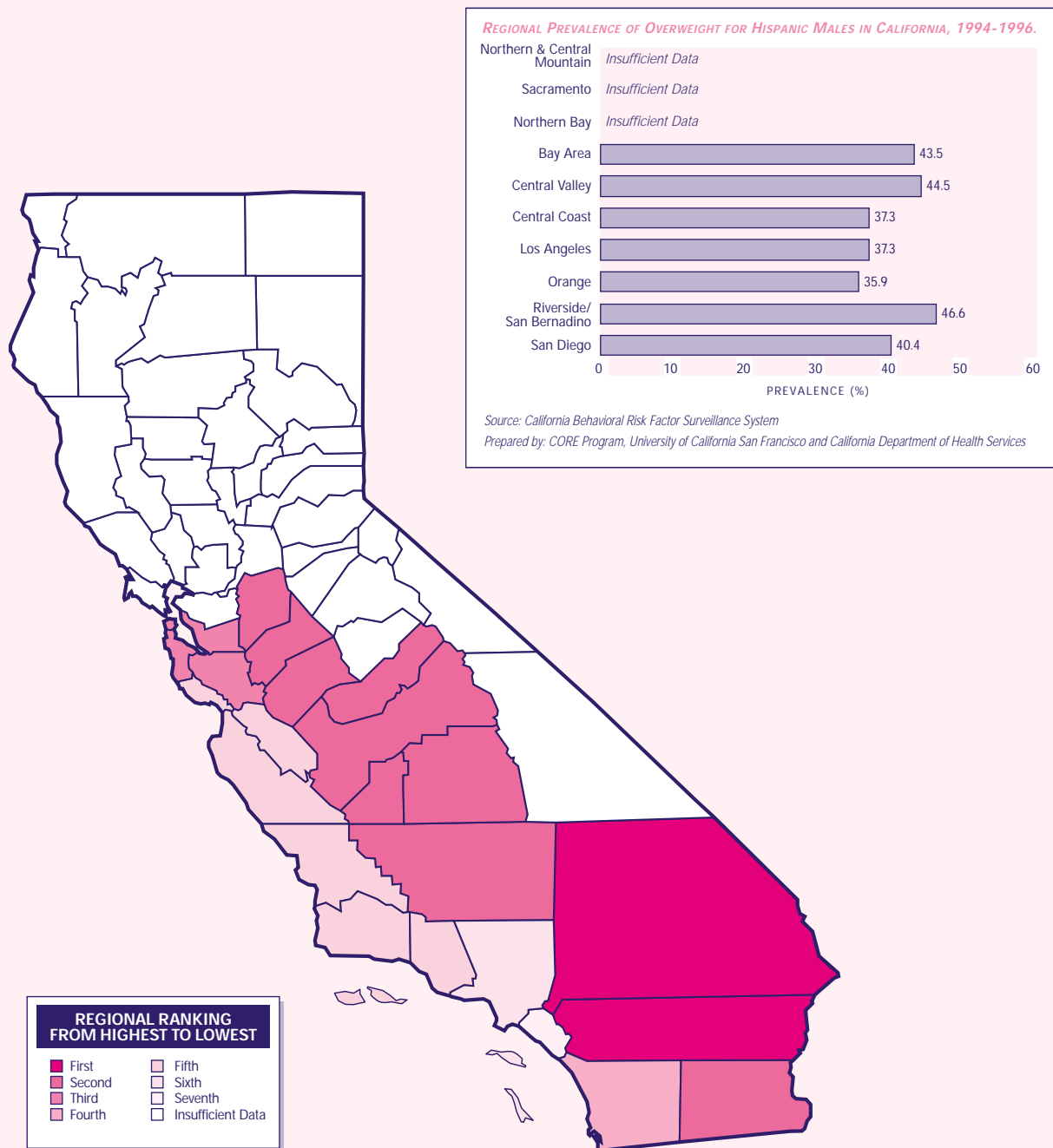
MAP 14: PREVALENCE OF OVERWEIGHT FOR WHITE MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

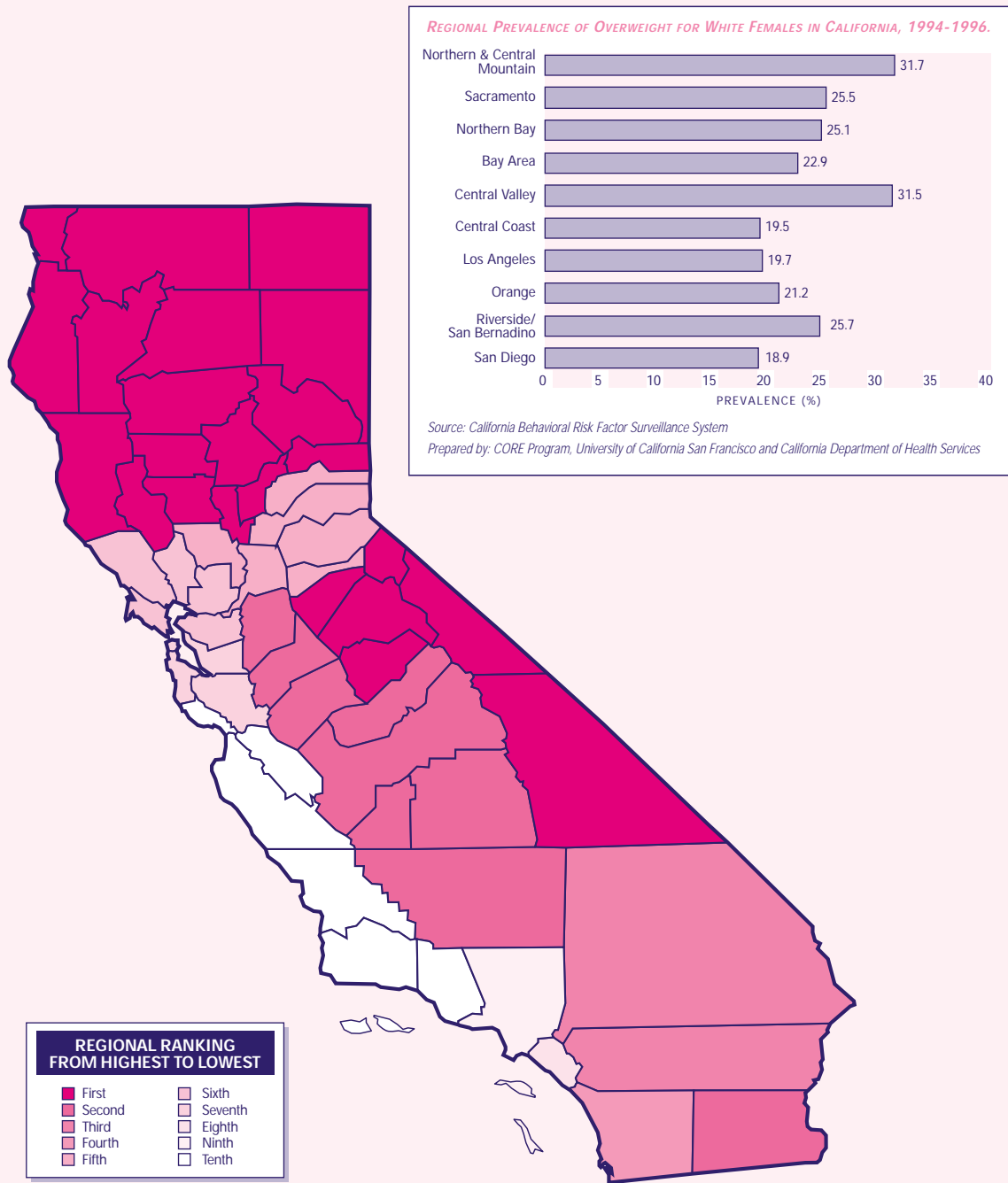
MAP 15: PREVALENCE OF OVERWEIGHT FOR HISPANIC MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

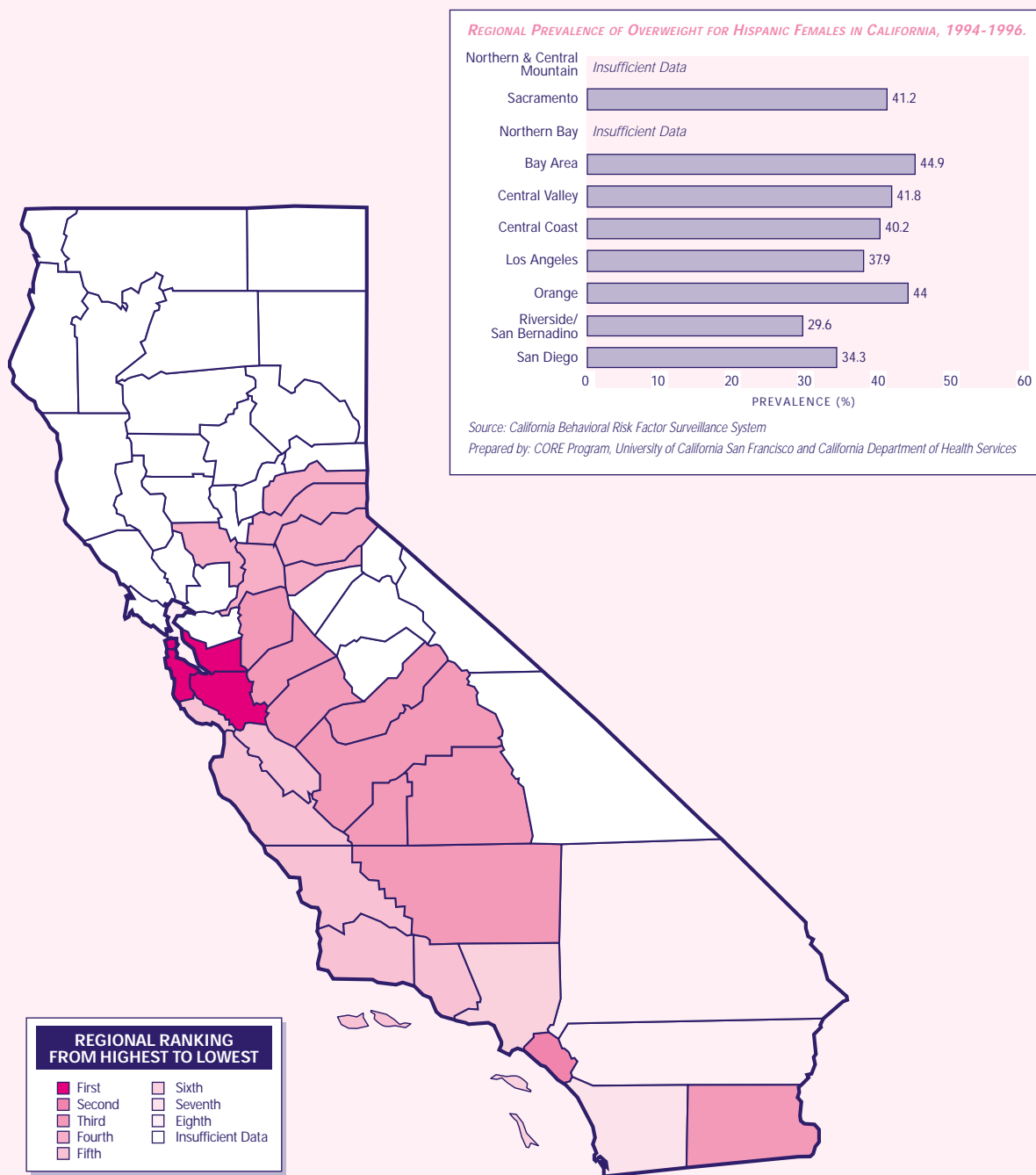
MAP 16: PREVALENCE OF OVERWEIGHT FOR WHITE FEMALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Obesity/Overweight

## REGIONAL DISTRIBUTION

MAP 17: PREVALENCE OF OVERWEIGHT FOR HISPANIC FEMALES BY REGION IN CALIFORNIA, 1994-1996



## Results - Leisure-Time Physical Inactivity

It is widely accepted that physical activity plays an important role in maintaining cardiovascular health.<sup>24</sup> Regular physical activity is associated with improved blood cholesterol, reduced blood pressure, and weight control. In fact, several studies have shown that heart disease is nearly twice as likely to develop in physically inactive individuals than in active persons, independent of other risk factors.<sup>25</sup>

Despite increasing evidence and public information about the health benefits of regular physical activity, the profile of physical activity patterns for American adults is disturbing. National data suggests that physical inactivity

accounts for approximately 25 percent of all deaths from chronic diseases. In a cooperative report addressing the problem of physical inactivity in the United States, the American College of Sports Medicine, the President's Council on Physical Fitness and Sports, and the Centers for Disease Control and Prevention stated that "[a] staggering quarter of a million deaths each year [are] attributed to physical inactivity."

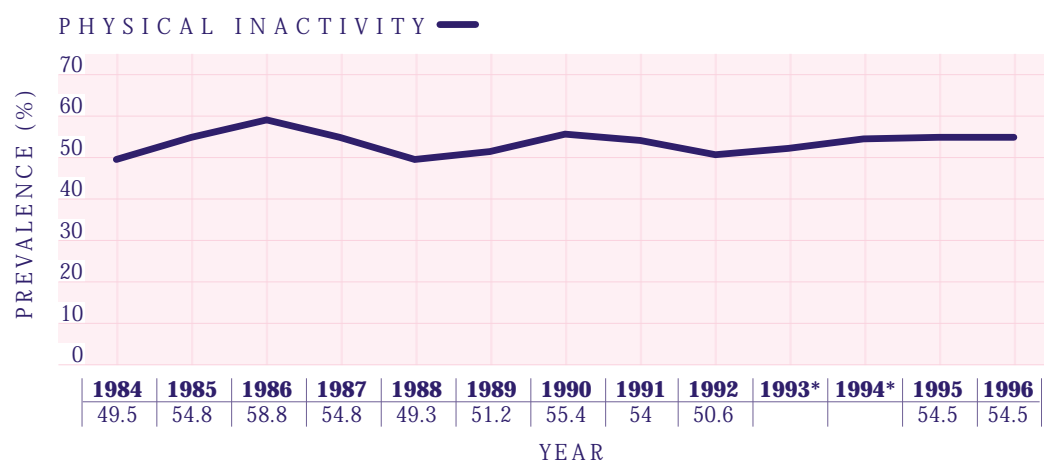
### DEFINITION

Persons who report no or irregular leisure-time physical activity during the past month are considered sedentary.<sup>4</sup>

## RESULTS

### Statewide Prevalence

**FIGURE 21: PREVALENCE OF PHYSICAL INACTIVITY AMONG CALIFORNIA ADULTS, 1984-1996**



*Trend not tested because data not available for 1993-1994*

*Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population*

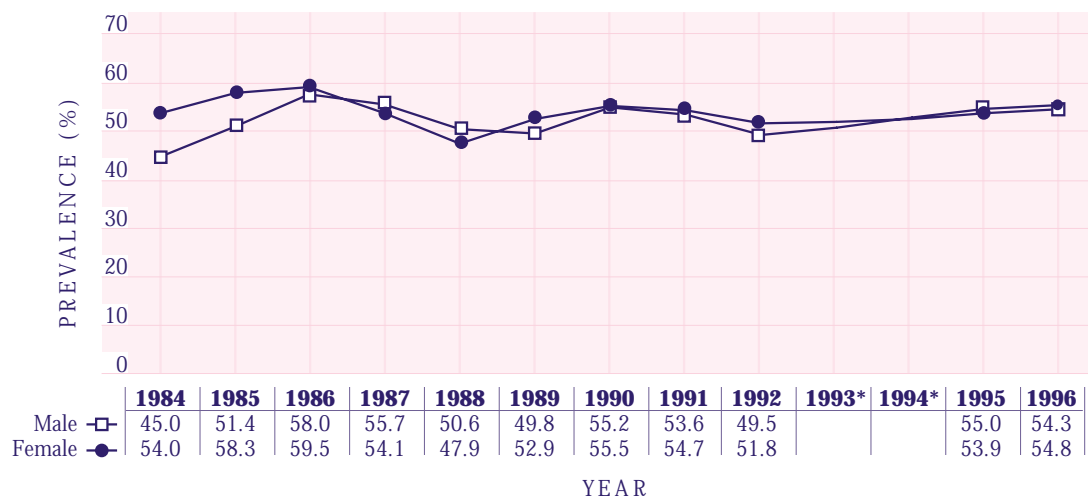
*Source: California Behavioral Risk Factor Surveillance System*

*Prepared by: CORE Program, University of California San Francisco and California Department of Health Services*

# Results - Leisure-Time Physical Inactivity

## STATEWIDE PREVALENCE

**FIGURE 22: PREVALENCE OF PHYSICAL INACTIVITY AMONG CALIFORNIA ADULTS BY GENDER, 1984-1996**



*Trend not tested because data not available for 1993-1994*

*Weighted to the age-, race- and sex-specific distribution of the 1990 California population*

*Source: California Behavioral Risk Factor Surveillance System*

*Prepared by: CORE Program, University of California San Francisco and California Department of Health Services*

The prevalence of physical inactivity among California adults has remained fairly constant over the past 13 years, from 1984 to 1996 (figure 21). In 1996, 54.5 percent of California adults

were sedentary. For that same year, men and women were equally likely to be sedentary, 54.3 percent and 54.8 percent, respectively (figure 22).

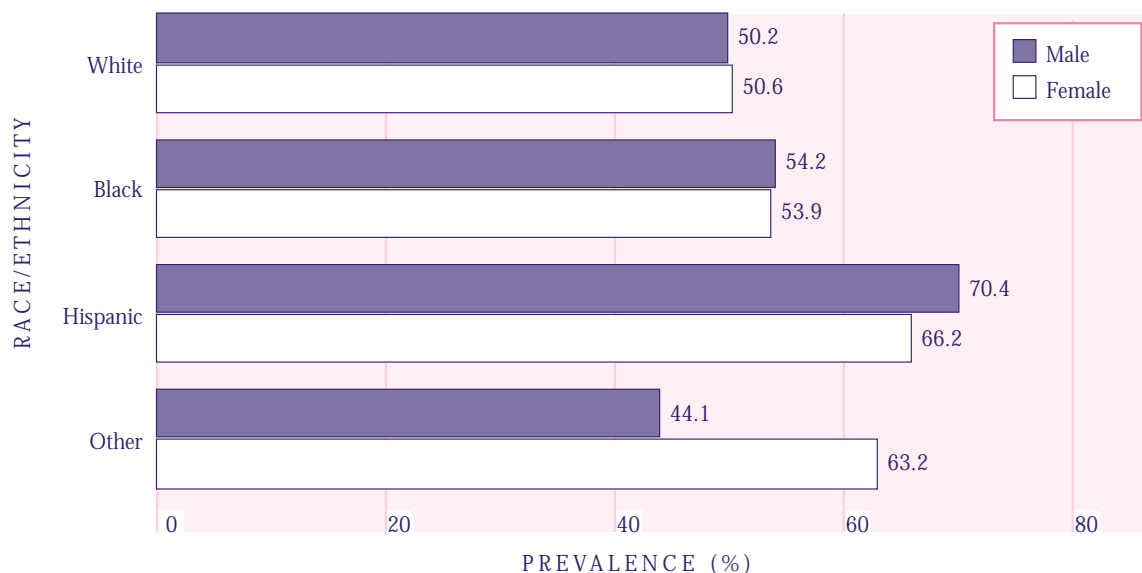
# Results - Leisure-Time Physical Inactivity

## STATEWIDE PREVALENCE

**TABLE 11: PREVALENCE OF PHYSICAL INACTIVITY AMONG CALIFORNIA ADULTS, 1996**

		SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Overall</b>		3933	54.5	(53.0, 56.1)
<b>Gender</b>	Male	1722	54.3	(51.9, 56.6)
	Female	2211	54.8	(52.7, 56.9)
<b>Male</b>	White	1134	50.2	(47.3, 53.1)
	Black	86	54.2	(43.7, 64.7)
	Hispanic	380	70.4	(65.8, 75.0)
	Other	128	44.1	(35.5, 52.7)
<b>Female</b>	White	1469	50.6	(48.0, 53.1)
	Black	122	53.9	(45.0, 62.7)
	Hispanic	487	66.2	(62.0, 70.4)
	Other	148	63.2	(55.4, 71.0)
<b>Age</b>	18-24	385	55.5	(50.6, 60.5)
	25-34	833	53.8	(50.4, 57.2)
	35-44	894	56.6	(53.3, 59.8)
	45-54	708	52.6	(48.9, 56.3)
	55-64	447	54.9	(50.2, 59.5)
	65+	687	54.4	(50.6, 58.1)
<b>Education Level</b>	Less than or equal to High School Graduate	1563	62.9	(60.5, 65.3)
	Some College	1071	53.1	(50.1, 56.1)
	College Graduate	1288	44.2	(41.5, 46.9)

**FIGURE 23: PREVALENCE OF PHYSICAL INACTIVITY AMONG CALIFORNIA ADULTS BY RACE AND GENDER, 1996**



Data age-adjusted to 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services



## Results - Leisure-Time Physical Inactivity

### STATEWIDE PREVALENCE

The proportion of adults who lead sedentary lives varies considerably by gender and race/ethnicity (figure 23). Looking at age-adjusted rates for 1996, Hispanic men (70.4%) and women (66.2%) are the most likely to be sedentary. Nearly one out of two black men (54.2%) and women (53.9%) and white men (50.2%) and women (50.6%) are sedentary. The only significant difference between genders within race/ethnic group is for others, where other women are significantly more likely to be sedentary (63.2%) compared to other men (44.1%) (table 11). For men, Hispanics (70.4%) have a significantly higher prevalence of physical inactivity compared to whites (50.2%), blacks (54.2%), and others (44.1%) (table 11). For women,

Hispanics have the highest prevalence, 66.2 percent, significantly higher than for whites (50.6%) (table 11).

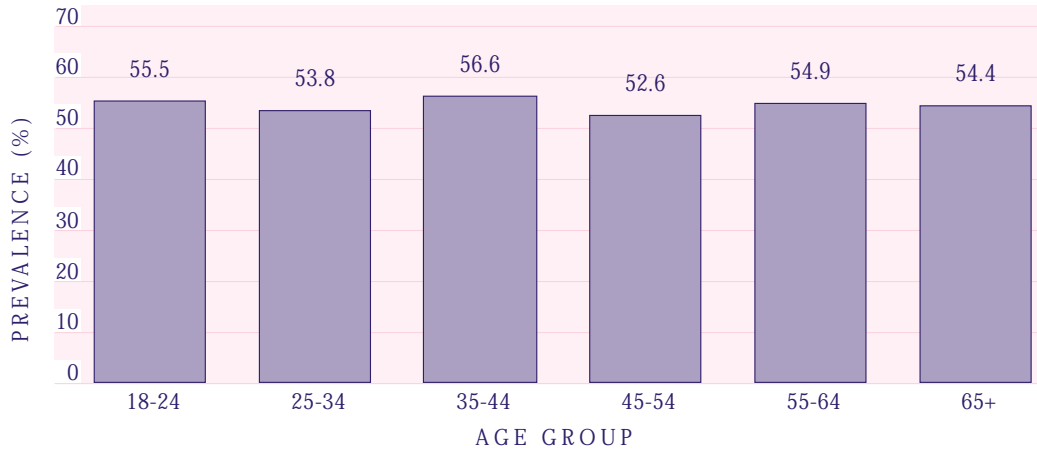
Unlike the other risk factors, the prevalence of physical inactivity is fairly similar among the age groups analyzed (figure 24); there are no significant difference between age groups (table 11).

Figure 25 shows the prevalence of physical inactivity by education level. As the education level increases, the prevalence of physical inactivity decreases significantly, from a high of 62.9 percent for those with a high school education or less to 44.2 percent for those who graduated from college (figure 25, table 11).

# Results - Leisure-Time Physical Inactivity

## STATEWIDE PREVALENCE

**FIGURE 24: PREVALENCE OF PHYSICAL INACTIVITY AMONG CALIFORNIA ADULTS BY AGE GROUP, 1996**

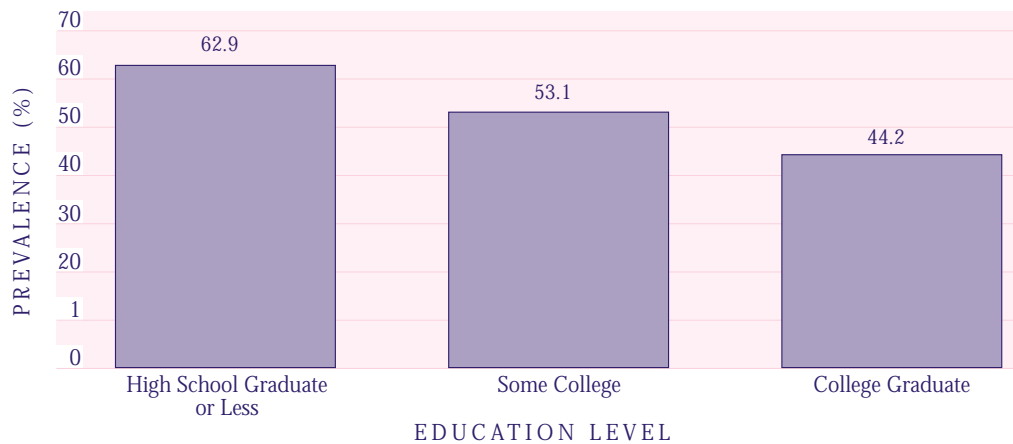


Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

**FIGURE 25: PREVALENCE OF OVERWEIGHT AMONG CALIFORNIA ADULTS BY EDUCATION LEVEL, 1996**



Data were weighted to the age-, race- and sex-specific distribution of the 1990 California population

Source: California Behavioral Risk Factor Surveillance System

Prepared by: CORE Program, University of California San Francisco and California Department of Health Services

# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

Table 12 shows the prevalence and 95% confidence intervals of physical inactivity for ten regions in California by gender and race/ethnicity. Only for the Bay Area and Los Angeles regions do we have adequate sample size to calculate prevalences for all gender and race/ethnic group combinations. For the remaining regions we are able to determine the prevalence of physical inactivity for white and Hispanic men and women.

The prevalence of physical inactivity did not differ between genders of the same race/ethnicity from the same region (table 12). However, the prevalence did differ significantly between race/ethnic groups of the same gender. Within the Los Angeles region, white women have significantly lower prevalence of physical inactivity (52.1%) compared to black (63.1%) and Hispanic (69.6%) women. For men in Los Angeles, whites have significantly lower prevalence (48.8%) compared to Hispanics (72%) and others (62.6%). For the Bay Area, Hispanic men have significantly higher

prevalence of physical inactivity (70%) compared to white men (46%) (table 12). For women in the Bay Area, whites have a significantly lower prevalence of physical inactivity (47.3%) compared to Hispanics (64.2%) and others (63.5%).

Maps 18-21 show the regional prevalence and ranking of physical inactivity for white and Hispanic men and women. For white men (map 18), the Northern and Central Mountain region has the highest prevalence, 58.2 percent; significantly greater than the prevalence for white men from the Bay Area (46%), Central Coast (40.6%), and San Diego (42.6%) regions. For Hispanic men (map 19), white women (map 20) and Hispanic women (map 21), there are no significant differences in the prevalence of physical inactivity between regions.

For more information on physical activity, other than what is contained in this report, please contact the Physical Activity and Health Initiative at (916) 324-2233.

# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

**TABLE 12: PREVALENCE OF PHYSICAL INACTIVITY FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Northern &amp; Central Mountain</b>	Male	White	227	58.2	(51.7, 64.6)
		Black	3	.	.
		Hispanic	20	.	.
		Other	8	.	.
	Female	White	250	52.7	(46.6, 58.9)
		Black	2	.	.
		Hispanic	19	.	.
		Other	9	.	.
<b>Sacramento Area</b>	Male	White	236	48.0	(41.6, 54.4)
		Black	23	.	.
		Hispanic	33	.	.
		Other	22	.	.
	Female	White	293	51.4	(45.7, 57.1)
		Black	19	.	.
		Hispanic	56	68.0	(55.7, 80.4)
		Other	24	.	.
<b>Northern Bay Area</b>	Male	White	313	55.4	(49.9, 60.9)
		Black	18	.	.
		Hispanic	45	.	.
		Other	35	.	.
	Female	White	364	49.4	(44.3, 54.5)
		Black	31	.	.
		Hispanic	50	66.1	(52.8, 79.3)
		Other	36	.	.
<b>Bay Area</b>	Male	White	474	46.0	(41.5, 50.5)
		Black	40	.	.
		Hispanic	126	70.0	(62.0, 78.1)
		Other	99	55.0	(45.2, 64.9)
	Female	White	521	47.3	(43.0, 51.6)
		Black	72	53.5	(41.9, 65.1)
		Hispanic	133	64.2	(56.1, 72.4)
		Other	96	63.5	(53.9, 73.2)
<b>Central Valley</b>	Male	White	292	48.8	(43.0, 54.5)
		Black	10	.	.
		Hispanic	155	74.2	(67.3, 81.1)
		Other	19	.	.
	Female	White	455	49.1	(44.5, 53.7)
		Black	24	.	.
		Hispanic	198	63.9	(57.2, 70.6)
		Other	40	.	.

# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

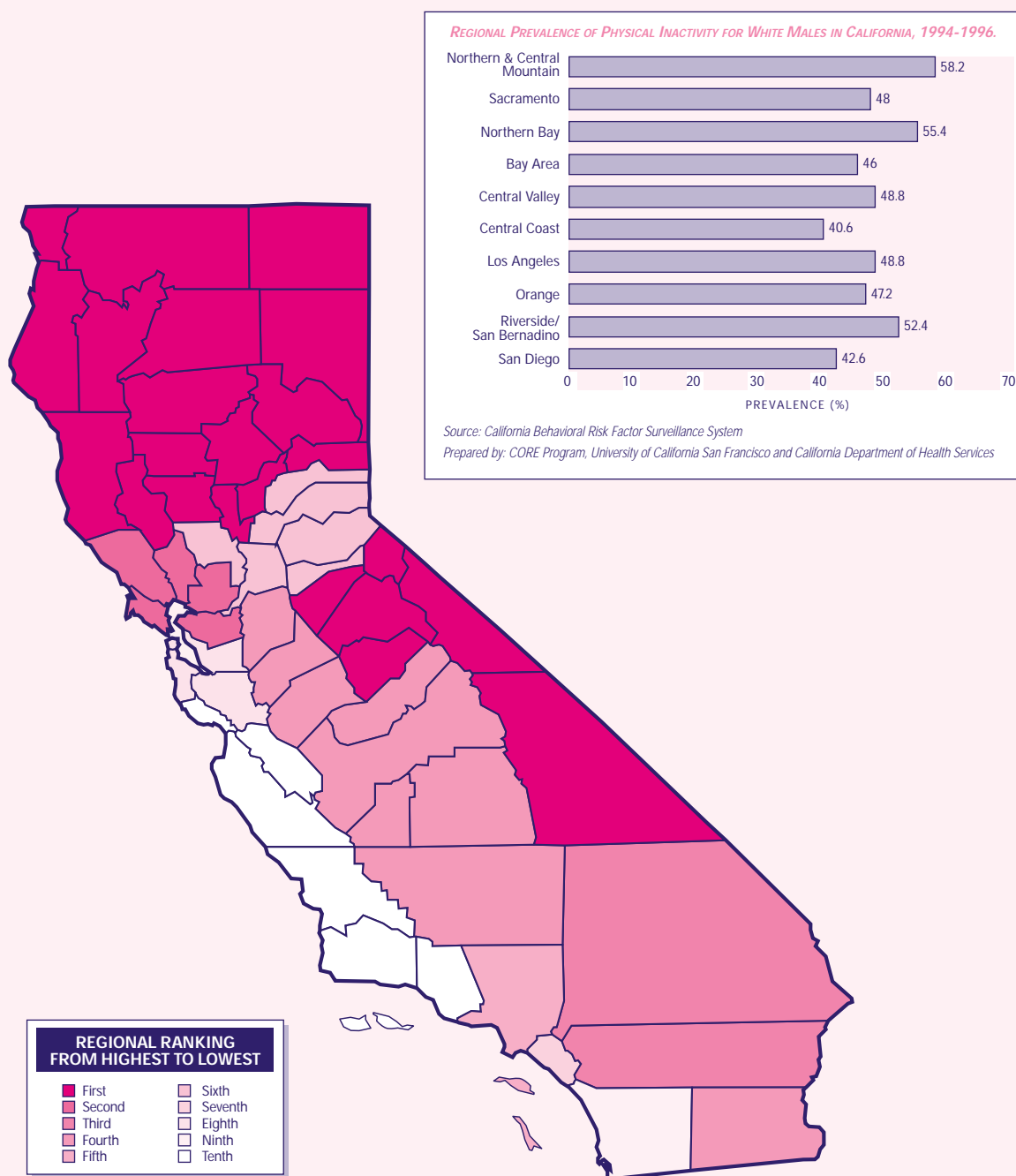
**TABLE 12: PREVALENCE OF PHYSICAL INACTIVITY FOR TEN REGIONS IN CALIFORNIA BY GENDER AND RACE/ETHNICITY, 1994-1996**

REGION	GENDER	RACE	SAMPLE SIZE	PREVALENCE	95% CONFIDENCE INTERVAL
<b>Central Coast</b>	Male	White	251	40.6	(34.5, 46.7)
		Black	8	.	.
		Hispanic	72	69.2	(58.4, 79.9)
		Other	12	.	.
	Female	White	324	41.6	(36.2, 46.9)
		Black	4	.	.
		Hispanic	88	56.7	(46.3, 67.1)
		Other	14	.	.
<b>Los Angeles</b>	Male	White	636	48.8	(44.9, 52.7)
		Black	123	59.4	(50.7, 68.1)
		Hispanic	437	72.0	(67.8, 76.2)
		Other	121	62.6	(54.0, 71.3)
	Female	White	772	52.1	(48.6, 55.6)
		Black	186	63.1	(56.1, 70.1)
		Hispanic	584	69.6	(65.8, 73.3)
		Other	135	60.7	(52.4, 69.0)
<b>Orange</b>	Male	White	282	47.2	(41.4, 53.0)
		Black	6	.	.
		Hispanic	90	70.7	(61.2, 80.1)
		Other	34	.	.
	Female	White	339	44.3	(39.0, 49.6)
		Black	6	.	.
		Hispanic	86	73.7	(64.3, 83.1)
		Other	34	.	.
<b>San Bernardino &amp; Riverside</b>	Male	White	353	52.4	(47.2, 57.6)
		Black	26	.	.
		Hispanic	120	62.2	(53.5, 70.9)
		Other	22	.	.
	Female	White	430	50.4	(45.7, 55.2)
		Black	29	.	.
		Hispanic	143	64.8	(57.0, 72.7)
		Other	21	.	.
<b>San Diego</b>	Male	White	336	42.6	(37.3, 47.8)
		Black	15	.	.
		Hispanic	102	70.5	(61.6, 79.4)
		Other	28	.	.
	Female	White	452	46.3	(41.7, 50.9)
		Black	20	.	.
		Hispanic	122	63.2	(54.6, 71.8)
		Other	50	47.4	(33.4, 61.3)

# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

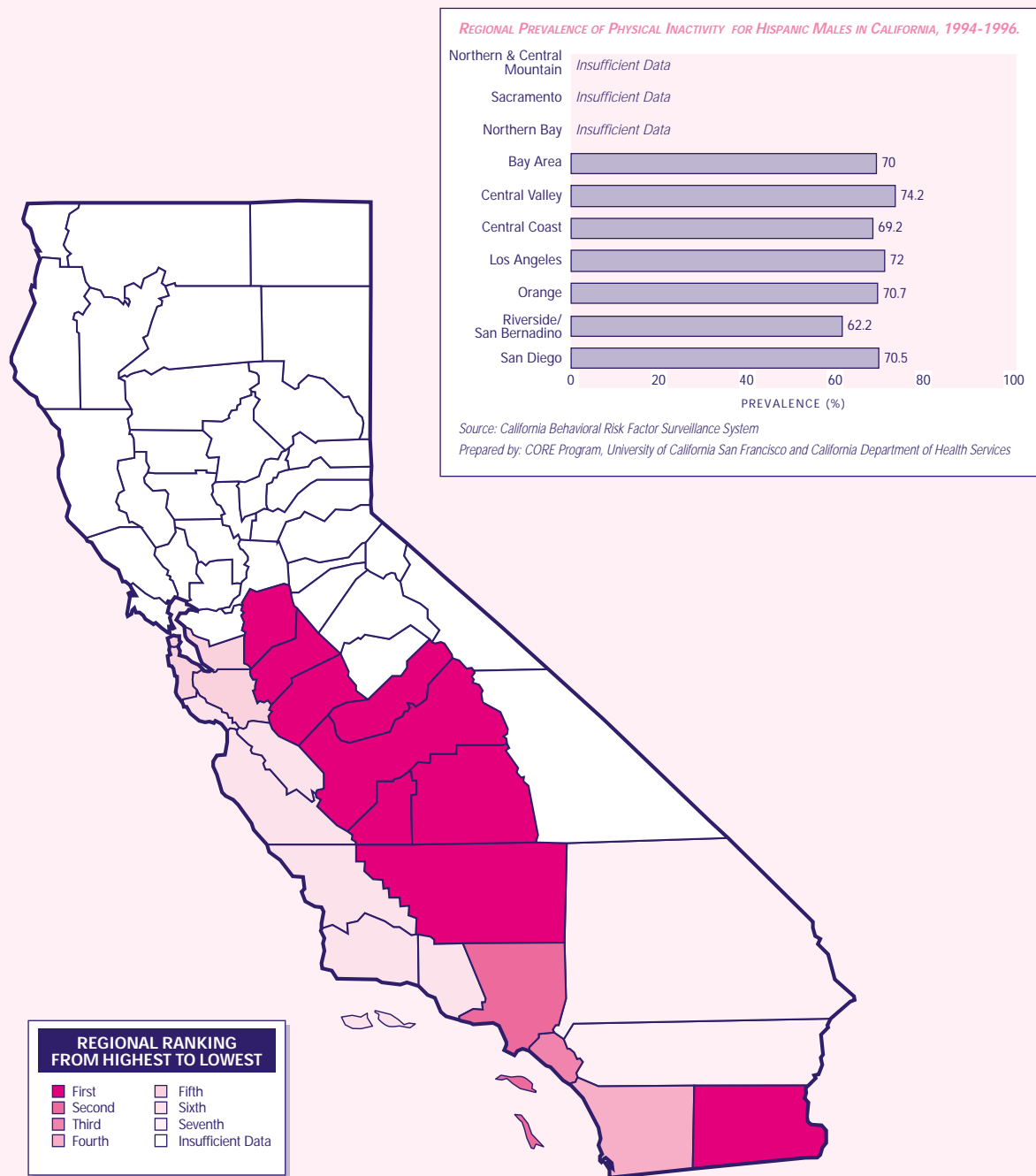
MAP 18 PREVALENCE OF PHYSICAL INACTIVITY FOR WHITE MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

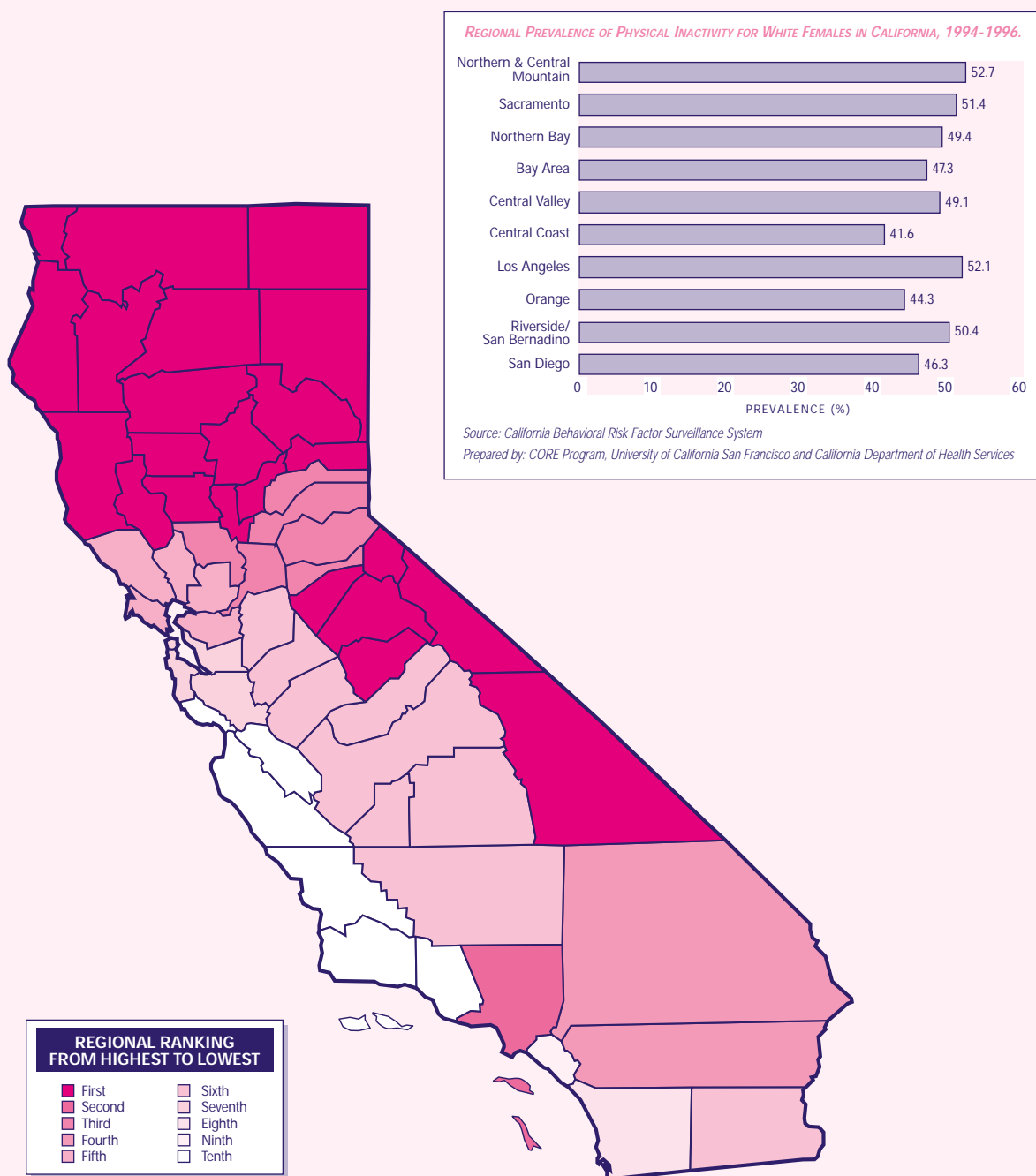
MAP 19 PREVALENCE OF PHYSICAL INACTIVITY FOR HISPANIC MALES BY REGION IN CALIFORNIA, 1994-1996



# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

MAP 20: PREVALENCE OF PHYSICAL INACTIVITY FOR WHITE FEMALES BY REGION IN CALIFORNIA, 1994-1996

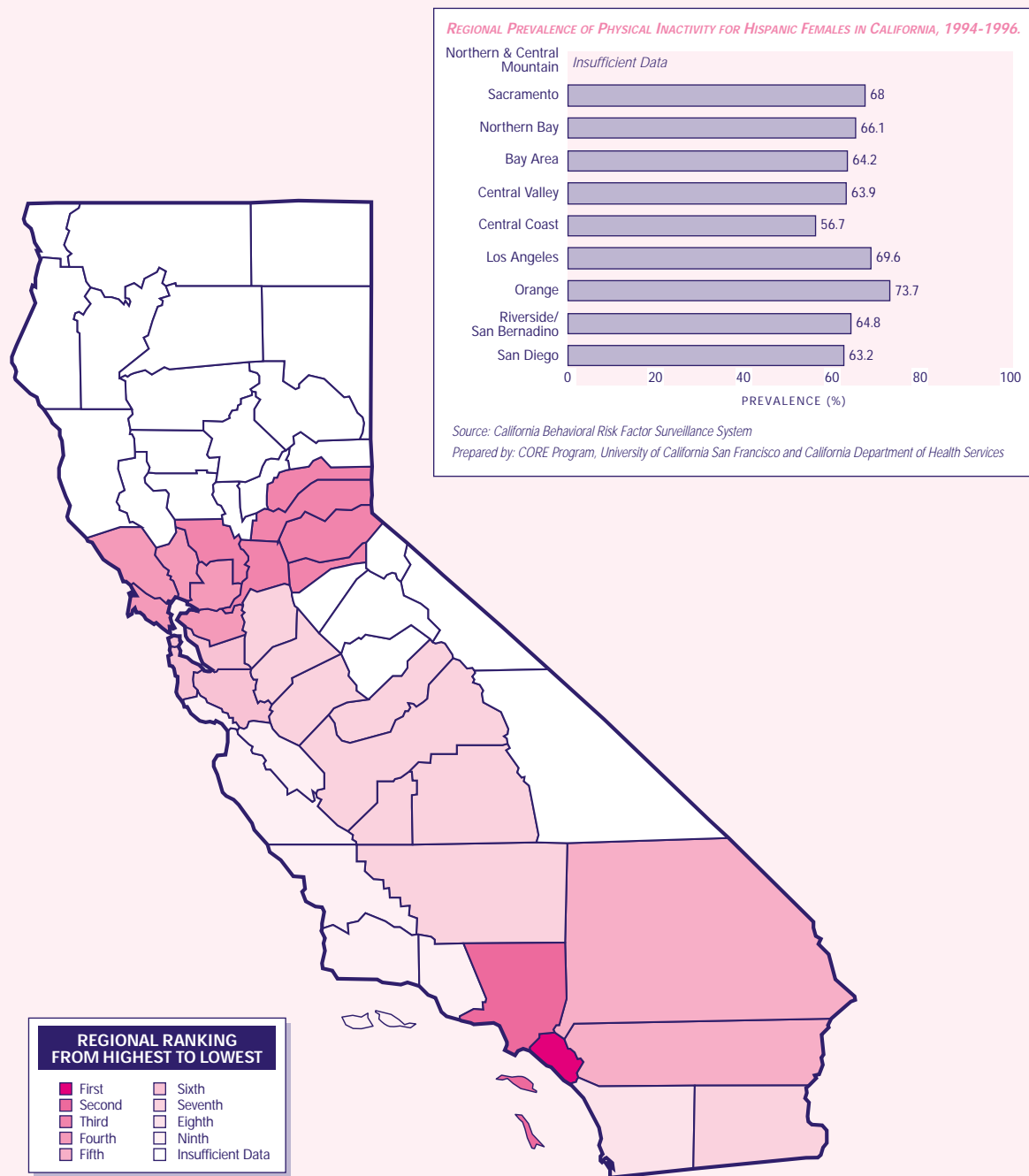




# Results - Leisure-Time Physical Inactivity

## REGIONAL DISTRIBUTION

MAP 21: PREVALENCE OF PHYSICAL INACTIVITY FOR HISPANIC FEMALES IN CALIFORNIA, 1994-1996



## LIMITATIONS

The data in this report should be interpreted with caution. The report is descriptive in nature and is not intended to be used to determine the causality of cardiovascular and cerebrovascular diseases among California adults.

Telephone surveys are a cost-effective method of rapidly obtaining population-based data. However, a number of limitations must be kept in mind when interpreting these data. Certain groups are excluded from or under-represented in telephone surveys; specifically, persons who do not live in a household with a telephone, people who are difficult to contact because of the hours they are at home, and people who refuse to participate. Insofar as these groups have behaviors which are different from the general population, estimates for the general population based on the survey sample will be biased.

The validity of survey results also depends on the accuracy of responses by participants. All self-reported data are affected by the willingness of participants to respond honestly and accurately. This is often dependent on the respondents ability to accurately interpret the question and recall past behavior. To minimize these problems, the BRFSS survey incorporates questions which have been successfully used in previous surveys whenever possible.

Because of the relatively small number of interviews completed, data on Asians, Native Americans and those of other (i.e., not self-reported as white, black or Hispanic) race or ethnicity are grouped together in one category. We appreciate the limited usefulness of such a heterogeneous grouping, but

have chosen to present the data for this aggregated group since it contributes to the overall population rate.

## SUMMARY

This report takes a specific look at the prevalence of five cardiovascular disease risk factors, including cigarette smoking, diabetes, high blood pressure, overweight and physical inactivity among California adults. The data from 1984 to 1996 are showing us a mix of both good and bad news. The good news: The prevalence of cigarette smoking has decreased significantly for both men and women. The bad news: The prevalence of diabetes and overweight, for men and women, have increased significantly, while the prevalence of physical inactivity has significantly increased for men. The news for high blood pressure is disturbing, in the past 13 years the trend has not declined for men or women.

These findings suggest that there is a great need for funded programs directed at preventing overweight and physical inactivity as well as programs aimed at hypertension and diabetes detection, treatment, and control. In addition, further study is needed to illuminate the sources of risk factor variation in geographic regions. The complex patterns of CVD risk factor distribution demonstrated in this report underscore the need for collecting, analyzing and disseminating such data to further the chronic disease public health effort. Our attempts to improve the cardiovascular health of Californians and motivate change will be much more effective if they are enlightened by information about which groups and regions across the state are most at risk and how behaviors are changing over time.

# Appendix A

## SURVEY QUESTIONS FOR FIVE CVD RISK FACTORS

### CIGARETTE SMOKING

Q. I'd like to ask you a few questions about cigarette smoking. Have you smoked at least 100 cigarettes in your entire life? **Yes**

Q Do you smoke cigarettes now? **Yes** In 1996, this question was changed to:  
Q Do you smoke every day, some days or not at all?

Q On the average, about how many cigarettes a day do you now smoke? Any answer except "Don't smoke regularly."

### DIABETES

The next few questions are about diabetes.

Q Have you ever been told by a doctor, nurse, or other health professional that you have diabetes? **Yes**

### HIGH BLOOD PRESSURE

The next few questions are about high blood pressure.

Q Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure? **Yes**

### OVERWEIGHT

Q About how much do you weigh without shoes?

Q About how tall are you without shoes?

Body mass index is calculated as:  $\text{weight in kg} / [(\text{height in m})^2]$

Overweight was defined as a BMI equal to or greater than the 85th percentile of the reference population in the second National Health and Nutrition Examination Survey. Male respondents were considered overweight if they had a BMI of 27.8 or higher, while women were considered overweight if they had a BMI of 27.3 or higher.

### PHYSICAL INACTIVITY

The next few questions are about exercise, recreation, or physical activities other than your regular job duties.

Q During the past month, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening or walking for exercise? **No**

**Age-Adjusted Rate** - a statistically modified rate which eliminates the effect of different age distributions in the different populations.

**Behavioral Risk Factor Surveillance Survey** - an ongoing surveillance system, conducted through a random digit dialing telephone interview, by the California Department of Health Services, in collaboration with the Centers for Disease Control and Prevention, to assess the prevalence and trends in health-related behaviors of California adults. Data are collected on the self-reported prevalence of risk factors such as smoking, high blood pressure, high blood cholesterol, physical inactivity, and obesity.

**Cardiovascular Disease** - diseases pertaining to the heart and blood vessels. The circulatory system of the heart and blood vessels is the cardiovascular system. Sometimes used interchangeably to include stroke.

**Cerebrovasuclar Disease** - See stroke.

**Cigarette Smoker** - a person who has smoked at least 100 cigarettes in their lifetime and currently smokes cigarettes.

**Coronary Heart Disease** - disease of the heart caused by atherosclerotic narrowing of the coronary arteries likely to produce angina pectoris or heart attack.

**Epidemiology** - the study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems.

**Heart Disease** - See coronary heart disease and ischemic heart disease.

**High Blood Cholesterol** - persons with serum cholesterol levels equal to or greater than 240 mg/dL or persons that have been diagnosed with high blood cholesterol and are taking medication prescribed for it.

**High Blood Pressure** - persons with repeated blood pressure readings (at least two readings on two different occasions) equal to or greater than 140 mm Hg systolic and/or 90 mm Hg diastolic or persons diagnosed with high blood pressure and taking antihypertensive medication.

**Ischemic Heart Disease** - also called Coronary Artery Disease and Coronary Heart Disease, this term is applied to heart ailments 1) caused by narrowing of the coronary arteries, and 2) therefore characterized by a decreased blood supply to the heart.

**Incidence** - the measure of the frequency with which an event, such as a new case of illness, occurs in a population over a period of time. The denominator is the population at risk; the numerator is the number of new cases occurring during a given time period.

# Appendix B

## GLOSSARY OF TERMS

**Morbidity** - any departure, subjective or objective, from a state of physiological or psychological well-being.

**Mortality Rate** - a measure of the frequency of occurrence of death in a defined population during a specified interval of time.

**Obesity** - the condition of being significantly overweight; usually defined as 30 percent or more above ideal body weight.

**Overweight** - a body weight that exceeds the normal or standard weight for a particular person, based on his or her height and frame size. A body mass index greater than or equal to 27.3 for women and greater than or equal to 27.8 for men.

**Physical Activity** - any body movement produced by skeletal muscles that results in an expenditure of energy. It includes a broad range of leisure time, occupational, and routine daily activities - from walking, gardening, and dancing to housework, manual labor, or jogging.

**Prevalence** - the number or proportion of cases or events or conditions in a given population.

**Risk Factor** - characteristics or behaviors that increase the chances of developing a disease or condition. For example a risk factor associated with an increased chance of developing cardiovascular disease is high blood pressure.

**Physical inactivity** - persons with no exercise outside of normal work duties or irregular (less than three times a week and/or less than twenty minutes per occasion) leisure-time physical activity during the past month.

**Stroke** - a sudden and often severe attack caused by an insufficient supply of blood to part of the brain. A form of cardiovascular disease that affects the arteries of the central nervous system.

**Surveillance** - the systematic collection, analysis, interpretation, and dissemination of health data on an ongoing basis, to gain knowledge of the pattern of disease occurrence and potential in a community, in order to control and prevent disease in the community.

## References

1. Vital Statistics of California 1992 (preliminary data). California Department of Health Services, Sacramento, CA: Vital Statistics Section, June 1994.
2. American Heart Association. 1989 Heart Facts. Dallas, TX: National Center, 1989.
3. Castelli WP. Epidemiology of coronary heart disease: the Framingham Study. *Am J Med* 1984;2:4-8.
4. California Behavioral Risk Factor Surveillance Survey. Sacramento, CA: California Department of Health Services, Chronic Disease and Injury Control Division, Cancer Surveillance Unit, June 1995.
5. Waksberg JS. Sampling methods for random digit dialing. *J Am Stat Assoc.* 1978; 73:40-46.
6. California Behavioral Risk Factor Surveillance System, Technical Report. Sacramento, CA: California Department of Health Services, Chronic Disease and Injury Control Division, Cancer Surveillance Unit, June 1995.
7. Carney K, Burns N, Slinkman C. The rural-urban demand indicator (RUDI). Index of Demand: An Economic Dimension of Rurality. *Texas Journal of Rural Health*, Third Quarter, 1991.
8. Smith B.J., Parvin D, Jr. Defining and measuring rurality. *Southern Journal of Agricultural Economics*. July, 1973. 109-113.
9. Rice DP, Max W. The cost of smoking in California, 1989. Sacramento, CA: California State Department of Health Services, 1992.
10. Pierce JP, Farkas A, Evans N, et al. Tobacco use in California, 1992. A focus on preventing uptake in adolescents. Sacramento, CA: California Department of Health Services, 1993.
11. Burns D, Pierce JP. Tobacco use in California, 1990-1991. Sacramento, CA: California Department of Health Services, 1992.
12. US Department of Health and Human Services, Public Health Service, Office of Disease Prevention and Health Promotion. Prevention Report, Stroke prevention: progress and challenges, October/November 1992.
13. Kawachi I, Colditz GA, Stampfer MJ, et al. Smoking cessation and decreased risk of stroke in women. *JAMA* 1993;269:232-36.
14. West KM. Epidemiology of diabetes and its vascular lesions. New York, NY: Elsevier, 1978, pp 375-402.
15. US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention. Diabetes Surveillance, 1993. November 1993.
16. National Institutes of Health, National Heart, Lung, and Blood Institute, National High Blood Pressure Education Program. The Fifth Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure, January 1993; NIH Publication No. 93-1088.

## References

17. Dawber TR. The Framingham Study: The epidemiology of atherosclerotic disease. Cambridge, MA: Harvard University Press, 1980.
18. Rissanen A, Heliovaara M, Knekt P, Reunanen A, Aromaa A. Is the burden of overweight on cardiovascular health underestimated? *Diabetes Res Clin Pract* 1990;10(Suppl 1):S195-S198.
19. US Department of Health and Human Services, Public Health Service. National Institutes of Health, National Heart, Lung, and Blood Institute. Obesity and Cardiovascular Disease, March 1993.
20. Berg FM. Obesity & Health. Obesity and Health, Hettinger, ND, 1993.
21. Barrett-Connor E. Obesity, atherosclerosis and coronary heart disease. *Ann Intern Med* 1985;103:1010-1019.
22. Manson JE, Colditz GA, Stampfer MJ, et al. A prospective study of obesity and risk of coronary heart disease in women. *New Engl J Med* 1990;322:882-9.
23. Hubert HB, Feinleib M, McNamara PM, Castelli WP. Obesity as an independent risk factor for cardiovascular disease: a 26-year follow-up of participants in the Framingham Heart Study. *Circulation* 1983;67:968-77.
24. Fletcher GF, Blair SN, Blumenthal J, et al. Benefits and recommendations for physical activity programs for all Americans. *Circulation* 1992;86:340-344.
25. Centers for Disease Control and Prevention. Public health focus: physical activity and the prevention of coronary heart disease. *MMWR* 1993;42:669-672.

**CORE PROGRAM**

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